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MOSQUITO VECTORS COLLECTED AT CONUS USAF INSTALLATIONS AND MOSQ--ETC(U)  
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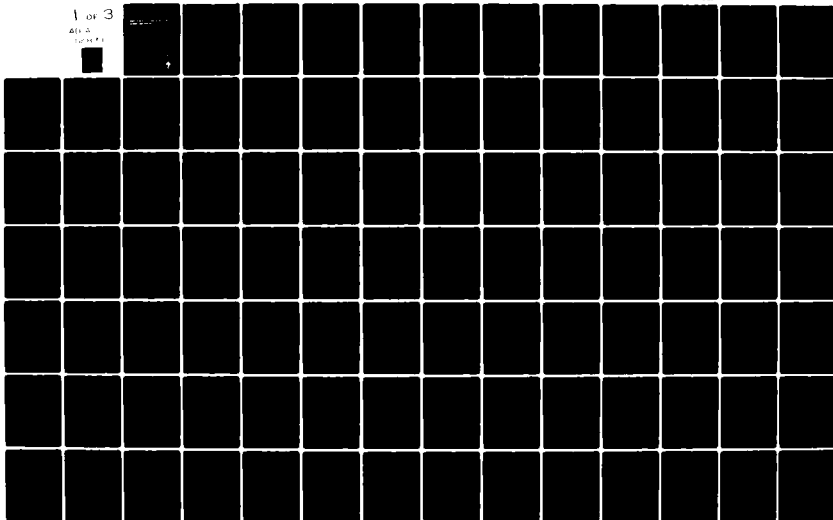
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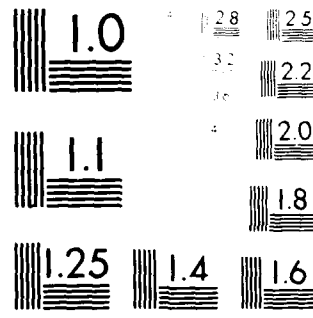
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Report SAM-TR-81-36

# MOSQUITO VECTORS COLLECTED AT CONUS USAF INSTALLATIONS AND MOSQUITO-BORNE DISEASE DATA

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December 1981

Final Report for Period 1970 - 1980

Approved for public release; distribution unlimited.

USAF SCHOOL OF AEROSPACE MEDICINE  
Aerospace Medical Division (AFSC)  
Brooks Air Force Base, Texas 78235

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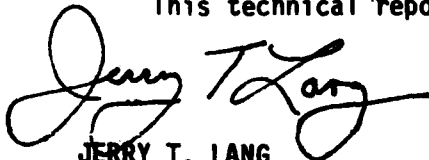
## NOTICES

This final report was submitted by personnel of the Disease Surveillance Branch, Epidemiology Division, USAF School of Aerospace Medicine, Aerospace Medical Division, AFSC, Brooks Air Force Base, Texas, under job order SUPTXXEK.

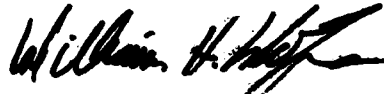
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This report has been reviewed by the Office of Public Affairs (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Distribution and abundance of mosquito vector species collected from 1971-1979 at CONUS USAF installations are tabulated and discussed. Mosquito-borne dis- ease incidence from 1970-1980 is also tabulated by State and county. Mosquito vector bionomics and mosquito-borne disease epidemiology are briefly dis- cussed. A		

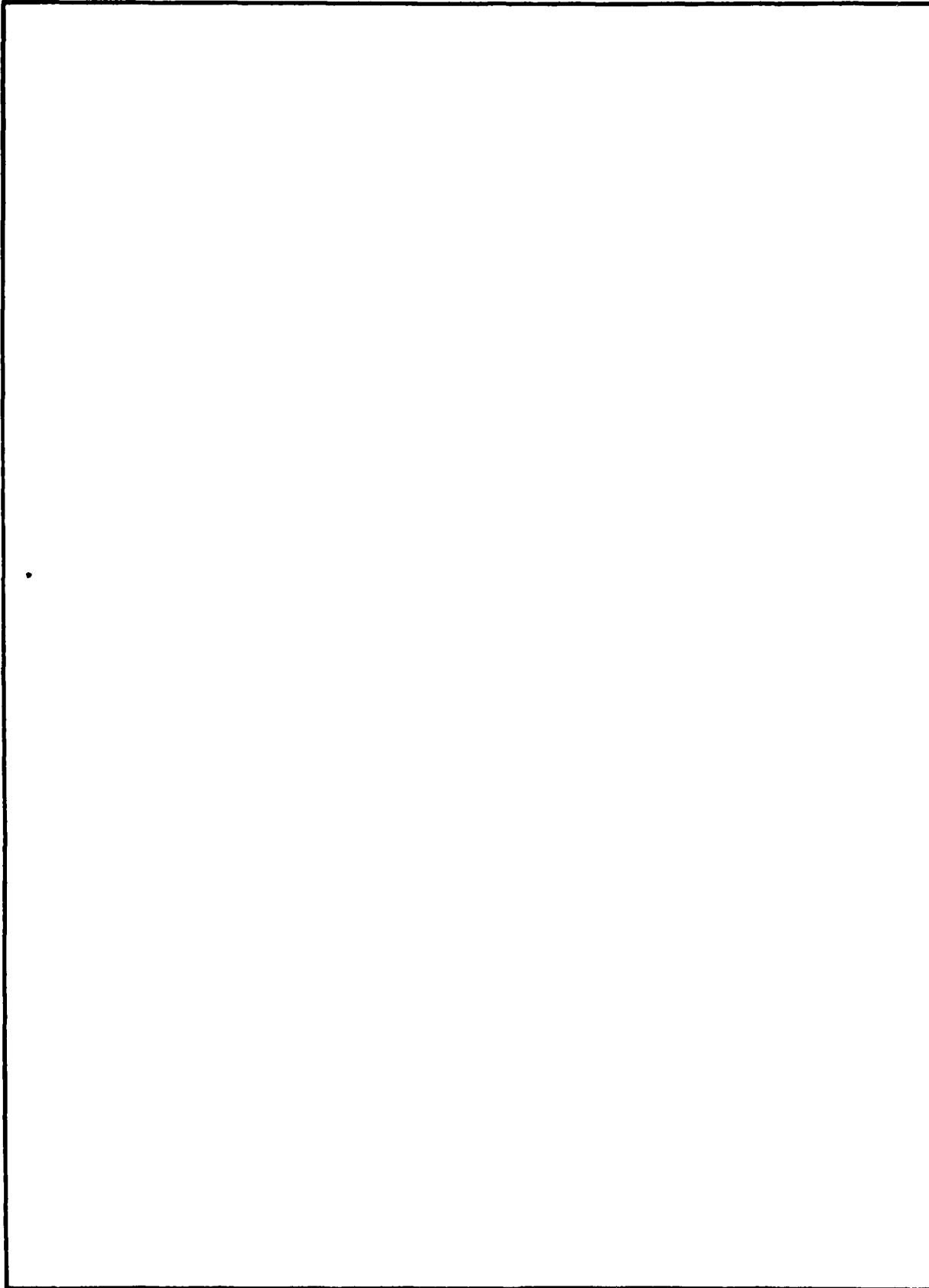
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MOSQUITO VECTORS COLLECTED AT CONUS USAF INSTALLATIONS  
AND MOSQUITO-BORNE DISEASE DATA

I. INTRODUCTION

The purpose of this technical report is to summarize the 1971-1979 collection records for the 20 most important vector species of mosquitoes found on Air Force installations within the United States and to show the potential human disease threat presented by these vectors. The mosquito collection data presented in this report are taken from the results of routine, base-level adult-mosquito surveillance programs conducted as required by Air Force Regulation 161-1. Tables on pages 8-103 of this report give the total number of adult females collected at each installation. Mosquito-borne disease incidence data were gathered from state epidemiologists in all states with active Air Force installations (Fig. 1).

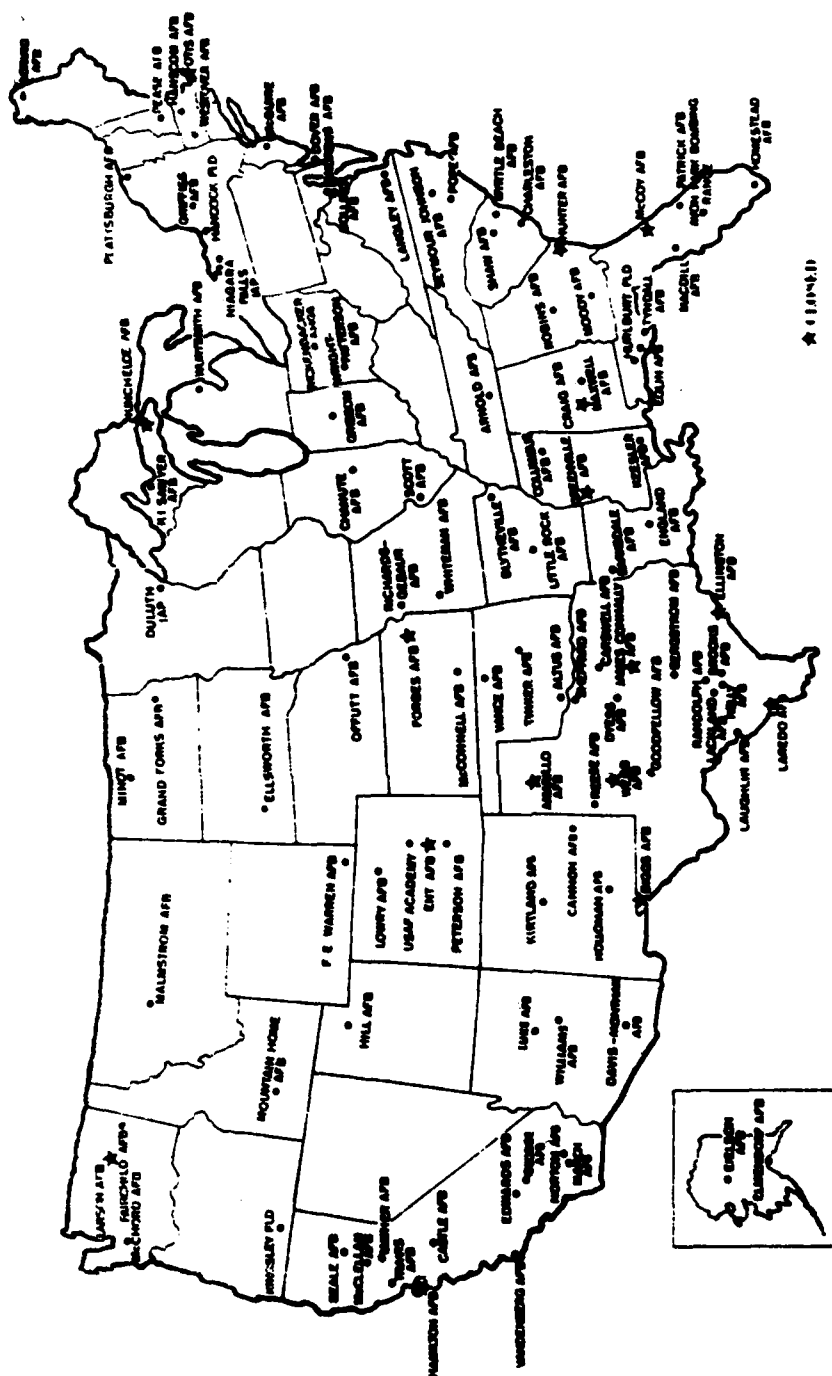
The U.S. Air Force School of Aerospace Medicine, Epidemiology Division, Disease Surveillance Branch, received mosquitoes for identification from 95 Air Force installations during 1971-1979. Most of the collections had been made using standard New Jersey light traps; therefore, the data reflect the biases inherent in the design and operation of this particular trap. Day-flying vectors such as *Aedes aegypti* are under-represented in collections from the Southeast. Similarly, species such as *A. triseriatus* and *Culiseta melanura*, which rarely leave wooded areas, are probably also under-represented in these collections since New Jersey light traps can operate only in areas where electrical requirements can be met.

The five most abundant and widespread vector species collected at CONUS Air Force installations were *A. vexans*, *Culex tarsalis*, *Psorophora columbiae*, *C. pipiens/quinqüefasciatus*, and *C. salinarius*. Further information on these species is given in sections II, III, and IV of this report.

The quality of mosquito-borne disease data (primarily encephalitides) obtained from the 40 States in which major Air Force installations are located varied greatly from State to State. Thirty of the States provided some specific information on mosquito-borne disease, and this information is tabulated in section V. Only Idaho, Maine, Oregon, Utah, and Wyoming reported the complete absence of mosquito-borne disease between 1971 and 1979.

St. Louis encephalitis (SLE) is the most important of the mosquito-borne encephalitides. SLE epidemics are usually urban in nature with *C. pipiens* subsp. mosquitoes acting as the primary vectors. The most widespread and intense SLE epidemic recorded occurred in the Ohio and Upper Mississippi River Valleys from 1975-1976, when 1815 human cases were reported. Over the 1971-1979 time period, 26 of the 30 States providing data on specific types of mosquito-borne encephalitis reported SLE activity. Several States in the geographic area of the 1975-1976 epidemic, such as Mississippi, did not report the specific viral etiologies of cases of human encephalitides; however, we can reasonably assume that the general increase in encephalitides in these States during the SLE epidemic years was mainly the result of increased SLE activity. The most intense SLE activity during the 1970s was in Illinois





**Figure 1. CONUS Air Force installations with mosquito-identification records.**

where 622 human cases were confirmed. Additional information on SLE is presented in section VI.

In years when SLE is not epidemic, California (La Crosse) encephalitis (CE) is the most important mosquito-borne human disease in CONUS. Unlike SLE, CE is more endemic in nature, thus causing a more constant number of human illnesses throughout its range each mosquito season. During most years, 50-100 human cases of CE occur throughout the Upper Mississippi and Ohio River Valleys, but 160 CE cases were reported in 1975. The endemic nature of CE is related to the characteristics of the primary vector mosquito, *A. triseriatus*, which is found mainly in wooded and densely shaded locations near its treehole breeding sites and its typical squirrel hosts. This behavior limits man-mosquito contact to more rural or suburban situations.

Western equine encephalitis (WEE) was not reported from any States farther east than Iowa. A major outbreak of WEE occurred in the Minnesota-Dakotas area in 1975. This epidemic was primarily the result of increased *C. tarsalis* populations which developed after early summer floods. Colorado also had an unusually large number of human WEE cases in 1975. Over the past decade, WEE was reported from 11 of the 30 States that provided data on specific mosquito-borne viral illnesses.

Reports of eastern equine encephalitis (EEE) in humans were limited to nine Atlantic and Gulf Coast States. EEE is primarily enzootic among water birds and is transmitted by the mosquito *Culiseta melanura*, found in coastal freshwater swamps. The disease becomes a threat to humans when aggressive vector mosquitoes such as *A. sollicitans* and *A. vexans* acquire the virus and subsequently bite man.

Venezuelan equine encephalitis (VEE) was a threat only once during the 1970s, when an epizootic among horses spread into south Texas from Mexico in 1971. Texas reported 84 human cases before emergency vector control and equine vaccination programs stopped transmission.

Although not present in the United States during the 1970s, dengue virus, transmitted by *A. aegypti*, currently poses a threat to the human populations in the Southern States. During the late summer of 1980, locally transmitted dengue occurred in Texas for the first time in 35 years, when 27 indigenously acquired cases were reported as an epidemic of the disease moved northward out of Mexico. The disease and vector populations are being monitored closely to control any potential epidemics in Texas and other Gulf Coast States.

The only nonviral mosquito-borne human disease reported active in the United States during the 1970s and 1980 was malaria. Throughout the decade hundreds of malaria cases were imported into the United States every year by travelers, military personnel, refugees, and others acquiring infections in the Tropics. However, only California reported any indigenous cases of malaria acquired from locally infected mosquitoes.

In summary, mosquito-borne encephalitides are generally widespread throughout the United States, with 100-400 confirmed human cases reported annually. Most of these encephalitides occur at low endemic levels over relatively fixed geographic areas. The primary exception is SLE which causes

where 622 human cases were confirmed. Additional information on SLE is presented in section VI.

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In summary, mosquito-borne encephalitides are generally widespread throughout the United States, with 100-400 confirmed human cases reported annually. Most of these encephalitides occur at low endemic levels over relatively fixed geographic areas. The primary exception is SLE which causes

periodic widespread epidemics. Other than encephalitis viruses, the greatest mosquito-borne disease threat is dengue virus which reappeared in the United States during 1980 after an absence of 35 years.

II. MOST ABUNDANT AND WIDESPREAD MOSQUITO VECTORS COLLECTED ON U.S. AIR FORCE INSTALLATIONS, 1971-1979

Species	No. bases where species comprised >10% of total collections	No. bases where species predominated	Primary distribution
<i>Aedes vexans</i>	46	23	Eastern U.S.
<i>Culex tarsalis</i>	37	23	Western U.S.
<i>Psorophora columbiae</i>	32	18	Lower Mississippi Valley westward to central Texas
<i>Culex pipiens/quinquefasciatus</i>	28	4	Entire U.S.
<i>Culex salinarius</i>	20	4	Atlantic and gulf coasts
<i>Aedes sollicitans</i>	11	3	Atlantic coast and Southern Plains
<i>Coquilleltidia perturbans</i>	10	6	Northern States, especially northern Great Lakes
<i>Aedes dorsalis</i>	7	4	Northern Great Plains; front range of Rockies
<i>Anopheles crucians</i>	6	1	Florida; Georgia
<i>Aedes taeniorhynchus</i>	3	1	Florida; Virginia

III. MOSQUITO VECTORS REPORTED BY USAF INSTALLATIONS

CRAIG AFB ALABAMA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>						28	110			138	41.1
<i>Anopheles</i>											
<i>crucians</i>					6					6	1.8
<i>freeborni</i>						1				1	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>						1	3			4	1.2
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **											
<i>restuans</i>					1					1	<1
<i>salinarius</i>											
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>					81	41	25			147	43.9
<i>discolor</i>											
Annual Totals				0	88	71	138			297	
Annual PTF*				0	82.2	97.3	89.0			88.7	
(Annual totals of all females)***				0	107	73	155			335	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

MAXWELL AFB ALABAMA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>							8	16	1	17	1.2
<i>taeniorhynchus</i>								84	4	96	6.7
<i>triseriatus</i>							1			1	<1
<i>trivittatus</i>											
<i>vexans</i>						62	181	459	46	748	51.6
<i>Anopheles</i>											
<i>crucians</i>								10		10	<1
<i>freeborni</i>											
<i>quadrinaculatus</i>						21	11	12	4	48	3.3
<i>Coquillettidia</i>											
<i>perturbans</i>						8		4	14	26	1.8
<i>Culex</i>											
<i>nigrilpalpus</i>									1	1	<1
<i>pipiens</i> **						69	51	40	6	166	11.4
<i>restuans</i>											
<i>salinarius</i>						4	30	19	10	63	4.3
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>metanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>						60	46	40	14	160	11.0
<i>discolor</i>											
Annual Totals						224	328	684	100	1336	
Annual PTF*						94.9	87.2	95	84.7	92.1	
(Annual totals of all females)***						236	376	720	118	1450	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

DAVIS-MONTHAN AFB ARIZONA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes aegypti</i>											
<i>darwini</i>											
<i>melanimon</i>											
<i>sollicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>				4						4	1.5
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>											
<i>Culex nigripalpus</i>											
<i>piptens</i> **				2						2	<1.0
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>			9	6						15	5.7
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>	11			12						23	8.8
<i>discolor</i>				1						1	<1.0
Annual Totals	11		9	25						45	
Annual PTF*	7.9		33.3	26.6						17.2	
(Annual totals of all females)***	140		27	94						261	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed



LUKE AFB ARIZONA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanicon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>		1		19	2	1				23	3.6
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **		63		3	154	42				262	41.5
<i>restuans</i>		4								4	<1
<i>salinarius</i>											
<i>tarsalis</i>		191		40	35	11				277	43.8
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbicae</i>											
<i>discolor</i>											
Annual Totals		259	0	62	191	54				566	
Annual PTF*		86.6	0	81.6	96.0	93.1				89.6	
(Annual totals of all females)***		299	0	76	199	58				632	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

WILLIAMS AFB ARIZONA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>								3		3	<1
<i>Aedes dorsalis</i>											
<i>Aedes melanotarsus</i>											
<i>Aedes sollicitans</i>											
<i>Aedes taeniorhynchus</i>											
<i>Aedes triseriatus</i>											
<i>Aedes trivittatus</i>											
<i>Aedes vexans</i>					2			6		8	<1
<i>Anopheles crucians</i>											
<i>Anopheles freeborni</i>											
<i>Anopheles quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>											
<i>Culex</i>											
<i>Culex nigripalpus</i>	1									1	<1
<i>Culex pipiens</i> **				7	23	1354	72	135	12	1603	64.6
<i>Culex restuans</i>							1			1	<1
<i>Culex salinarius</i>											
<i>Culex tarsalis</i>	7			12	36	207	3	35	34	374	15.0
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>				10	1		1				
<i>Psorophora discolor</i>									363	375	15.1
Annual Totals	8			29	82	1561	77	199	409	2365	
Annual PTF*	100.0			90.6	100.0	96.5	97.5	87.7	94.2	95.4	
(Annual totals of all females)***	8			32	82	1618	79	227	434	2480	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

BLYTHEVILLE AFB ARKANSAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>		2								2	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>	1									1	
<i>trivittatus</i>											
<i>vexans</i>	5	232	84	107	165	257	693	396	531	2470	10.3
<i>Anopheles</i>											
<i>crucians</i>		1		5			5		6	17	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>	1	40	11	161	5	94	3	72	138	525	2.2
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>negripalpus</i>											
<i>pipiens**</i>	5	15	11	40	18	315	242	40	35	721	3.0
<i>restuans</i>	1	5	1							7	<1
<i>salinarius</i>	2	49	12	138	31	8	24		50	314	1.3
<i> tarsalis</i>		8	5		2	5	65	9	1	91	<1
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbica</i>	575	1460	334	2805	894	8370	2903	1178	587	19106	79.8
<i>discolor</i>	1	36						4		41	<1
Annual Totals	591	1848	456	3256	1115	9047	3935	1699	1348	23295	
Annual PTF*	99.3	95.0	97.6	98.1	94.5	99.4	96.6	96.1	91.2	97.3	
(Annual totals of all females)***	595	1946	467	3320	1180	9104	4073	1768	1478	23931	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

LITTLE ROCK AFB ARKANSAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>											
<i>taeniorhynchus</i>							2		6	8	<1
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>versans</i>			5	20	121	94	27	1205	206	1678	35.4
<i>Anopheles</i>											
<i>crucians</i>		1				2		28	11	42	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>		6			7	19	5	210	146	395	8.3
<i>Coquillettidia</i>											
<i>perturbans</i>	3		1		35	8	4	21	5	77	1.6
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **					33	71	13	75	36	228	4.8
<i>restuans</i>					9					9	<1
<i>salinarius</i>			2	5	46		11	53	56	173	3.7
<i>farsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>									1	1	<1
<i>Psorophora</i>											
<i>columbiae</i>	1	20		138	645	179	353	535	120	1991	42.0
<i>discolor</i>					1					1	<1
Annual Totals	4	27	8	163	897	373	415	2127	587	4601	
Annual PTF*	100.0	93.1	100.0	98.8	98.8	96.1	96.5	98.9	89.3	97.1	
(Annual totals of all females)***	4	29	8	165	908	388	430	2150	657	4759	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

BEALE AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>egypti</i>											
<i>dorsalis</i>								24	1	24	<1
<i>melanion</i>										1	<1
<i>solicitans</i>											
<i>teeniorhynchus</i>								2		2	<1
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>			50	45	18	255	33	230	540	1171	45.4
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>			3	1				40	2	46	1.8
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>			46	66	2	396	7	259	220	996	38.6
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbica</i>											
<i>discolor</i>											
Annual Totals			99	112	20	651	40	555	763	2240	
Annual PTF*			76.7	83.6	100	96.3	51.9	73.7	96.2	86.8	
(Annual totals of all females)***			129	134	20	676	77	753	793	2582	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

CASTLE AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanmon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>					3	2				5	1.1
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>	1									1	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>				-							
<i>nigripalpus</i>					16	147	1			174	38.0
<i>pipiens**</i>	10										
<i>restuans</i>					9					9	1.2
<i>salinarius</i>	19				10	67	2	38	46	182	39.7
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>	3					2				5	1.1
<i>columblae</i>											
<i>discolor</i>											
Annual Totals	33				38	218	3	38	46	376	
Annual PTF*	71.7				55.9	94.8	100.0	76.0	75.4	82.1	
(Annual totals of all females)***	46				68	230	3	50	61	458	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

EDWARDS AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	3									3	1.3
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>negripalpus</i>											
<i>pipiens**</i>						10				10	4.4
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>	32	2				14				48	21.2
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbica</i>											
<i>discolor</i>											
Annual Totals	35	2		0		24	0	0		61	
Annual PTF*	20.0	50		0		51.1	0	0		27.0	
(Annual totals of all females)***	175	4		0		47	0	0		226	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

GEORGE AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **											
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>							59			59	100
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbæ</i>											
<i>discolor</i>											
Annual Totals							59	0		59	
Annual PTF*							100			100	
(Annual totals of all females)***							59	0		59	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed



HAMILTON AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>		18	10							28	3.4
<i>melanimon</i>											
<i>solicifans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborn</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>		1								1	<1
<i>restuans</i>											
<i>sallinaris</i>											
<i>tarsalis</i>		372	306							678	82.3
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbæ</i>											
<i>discolor</i>											
Annual Totals		391	316							707	
Annual PTF#		88.9	82.5							85.9	
(Annual totals of all females)***		440	383							823	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

MATHER AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>								10		10	<1
<i>vexans</i>											
<i>Anopheles</i>											
<i>cruciatus</i>											
<i>freeborni</i>						5		19	3	27	1.5
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>						1				1	<1
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>						6	13	125	45	189	12.9
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>						617	18	230	40	905	62.0
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbae</i>						1				1	<1
<i>discolor</i>											
Annual Totals						630	31	384	88	1133	
Annual PTF*						85.0	49.2	73.0	67.7	77.6	
(Annual totals of all females)***						741	63	526	130	1460	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

## MOORELLAN AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>						1	2			3	<1
<i>Aedes dorsalis</i>											
<i>Aedes melanotarsus</i>											
<i>Aedes sollicitans</i>										3	<1
<i>Aedes taeniorhynchus</i>			3								
<i>Aedes triseriatus</i>											
<i>Aedes trivittatus</i>											
<i>Aedes vexans</i>			1				2	3		6	<1
<i>Anopheles crucians</i>											
<i>Anopheles freeborni</i>			120	27	957		11			1115	
<i>Anopheles quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>											
<i>Culex nigripalpus</i>											
<i>Culex pipiens</i> **			277	1	1	38	3			320	11.5
<i>Culex restuans</i>											
<i>Culex salinarius</i>											
<i>Culex tarsalis</i>			295	218	362	71	44	8		998	35.9
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>											
<i>Psorophora discolor</i>			1	1						2	<1
Annual Totals			697	247	1320	110	62	11		2447	
Annual PTF*			96.3	53.5	99.7	60.4	79.5	91.7		88.0	
(Annual totals of all females)**			724	462	1324	182	78	12		2782	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

TRAVIS AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis		2								2	5.9
melanimon											
sollicitans											
taeniorhynchus											
triseriatus											
trivittatus											
vexans											
Anopheles											
crucians											
freeborni											
quadrimaculatus											
Coquillettidia											
perturbans											
Culex											
nigripalpus											
pipiens**											
restuans											
salinarius											
farsalis		18	4							22	64.7
Culiseta											
melanura											
Psorophora											
columbica											
discolor											
Annual Totals		20	4	0						24	
Annual PTF*		69.0	80.0	0						70.6	
(Annual Totals of all females)***		29	5	0						34	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

VANDENBERG AFB CALIFORNIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>egypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>	1						7			8	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>						5				5	<1
<i>Culex</i>											
<i>negripalpus</i>											
<i>pipiens**</i>			3		1	2	35	22	38	101	1.7
<i>restuans</i>	1						36			37	<1
<i>salinarius</i>											
<i>tarsalis</i>	17	2	617	19	147	1063	345	130	35	2373	41.0
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>							4			4	<1
<i>discolor</i>											
Annual Totals	19	2	620	19	148	1070	427	152	71	2528	
Annual PTF*	45.2	100.0	41.7	22.4	51.6	47.5	68.2	17.0	67.6	43.8	
(Annual totals of all females)***	42	2	1485	85	287	2251	626	894	105	5777	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not IIS & I

USAF ACADEMY COLORADO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes											
aegypti											
dorsalis			4		4	3	11			22	1.6
melanimon											
solicitans											
taeniorhynchus											
triseriatus											
trivittatus											
vexans		2	12	3	8				2	27	1.9
Anopheles											
crucians											
freeborni											
quadrimaculatus											
Coquillettidia											
perturbans									18	18	1.2
Culex											
negripalpus											
pipiens**		1	1							2	<1
restuans											
salinarius			10				11			21	1.5
tarsalis	3	21	11	36	88	8	158		9	334	23.7
Culiseta											
melanura											
Psorophora											
columblae							1			1	<1
discolor											
Annual Totals	3	24	38	39	100	11	181	0	29	425	
Annual PTF#	12.0	39.3	8.0	28.3	43.1	22.0	68.3	0	20.3	30.1	
(Annual totals of all females)***	25	61	477	138	232	50	265	21	143	1412	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

ENT AFB COLORADO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>		2								2	1.5
<i>Aedes dorsalis</i>											
<i>Aedes melanimon</i>											
<i>Aedes sollicitans</i>		2								2	1.5
<i>Aedes taeniorhynchus</i>											
<i>Aedes triseriatus</i>											
<i>Aedes trivittatus</i>											
<i>Aedes vexans</i>		7								7	5.2
<i>Anopheles crucians</i>											
<i>Anopheles freeborni</i>											
<i>Anopheles quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>											
<i>Culex</i>											
<i>Culex nigripalpus</i>											
<i>Culex pipiens</i> **											
<i>Culex restuans</i>											
<i>Culex salinarius</i>											
<i>Culex tarsalis</i>		90								90	66.7
<i>Culiseta melanura</i>											
<i>Psorophora columblae</i>											
<i>Psorophora discolor</i>											
Annual Totals		101								101	
Annual PTF*		74.8								74.8	
(Annual totals of all females)***		135								135	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

LOWRY AFB COLORADO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis				158		20	148			326	51.3
melanimon											
solicitans											
teenforhynchus											
triseriatus											
trivittatus											
voxans				43		29	18			90	14.2
Anopheles											
crucians											
freeborni											
quadrimaculatus											
Coquillettidia											
perturbans											
Culex											
nigripelplus											
pipiens**				25						25	3.9
restuans											
salinarius											
tarsalis	7			1		99	31			138	21.7
Culiseta											
melanura											
Psorophora											
columblae											
discolor											
Annual Totals	7			227		148	197			579	
Annual PTF*	31.8			90.8		91.9	97.5			91.2	
(Annual totals of all females)***	22			250		161	202			635	

\*Percent total females

\*\*includes Culex quinquefasciatus

\*\*\*includes species collected but not listed



PETERSON AFB COLORADO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>egypti</i>											
<i>dorsalis</i>			1	5	2					8	5.0
<i>melanoscopus</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>				1						1	<1
<i>verans</i>				1						1	<1
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **											
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>			8	54	50	1			2	115	71.4
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals			9	61	52	1		0	2	125	
Annual PTF*			52.9	77.2	86.7	100.0		0	50.0	77.6	
(Annual totals of all females)***			17	79	60	1		0	4	161	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

## DOVER AFB DELAWARE

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>						340	47	1284	303	2174	14.1
<i>solicitans</i>									1	1	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>						16	2	301	949	1268	8.2
<i>Anopheles</i>											
<i>crucians</i>						2		9	193	204	1.3
<i>freeborni</i>											
<i>quadrimaculatus</i>								5	49	54	<1
<i>Coquillettidia</i>											
<i>perturbans</i>						3			13	16	<1
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>						23	2	717	1113	1835	12.0
<i>restuans</i>											
<i>salinarius</i>						615	10	1840	6562	9027	58.4
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>						36		146	149	331	2.1
<i>discolor</i>											
Annual Totals						1235	61	4302	9332	14930	
Annual PTF*						97.8	98.4	98.1	95.7	96.5	
(Annual totals of all females)***						1263	62	4384	9756	15465	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

AVON PARK BOMBING RANGE FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanopus</i>											
<i>sollicitans</i>								192		192	4.6
<i>taeniorhynchus</i>								283	10	293	7.0
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>								2	14	16	<1
<i>Anopheles</i>											
<i>crucians</i>								328	206	534	12.7
<i>freeborni</i>											
<i>quadrimaculatus</i>								8	10	18	<1
<i>Coquillettidia</i>											
<i>perturbans</i>									38	38	<1
<i>Culex</i>											
<i>nigrispinus</i>								813	362	1175	27.9
<i>pipiens</i> **									160	160	3.8
<i>restuans</i>								5		5	<1
<i>salinarius</i>								396	30	426	10.1
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>								259	426	685	16.3
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals								2286	1256	3542	
Annual PTF*								85.3	82.0	84.1	
(Annual totals of all females)***								2681	1532	4213	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

EGLIN AFB FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti			1					1		2	<1
Aedes dorsalis											
Aedes melanom											
Aedes sollicitans	16	22	17	5	1	9	25	5	1	101	<1
Aedes triseriatus	6	17		26	4	5	34	32	22	146	1.0
Aedes trivittatus	21	2	65	24	10					122	<1
Aedes vexans	664	474	4581	560	16	39	29	179	91	6633	46.3
Anopheles crucians	338	169	832	82	12	19	5	34	14	1505	10.5
Anopheles freeborni											
Anopheles quadrimaculatus	2	28	56	15	2			2		105	<1
Coquillettidia perturbans	28	3	7	8				2	2	50	<1
Culex nigripalpus	74	44	18								
Culex pipiens**	38	28	306	40		39	115	33	40	144	1.0
Culex restuans	38	12	14							639	4.4
Culex salinarius	236	125	396	108	275	25	23	4	9	64	<1
Culex tarsalis	1		1	5						1201	8.3
Culiseta melanura		2	1					1		7	<1
Psorophora columbiana	316	28	193	203	33	23	164	125	24	4	<1
Psorophora discolor			14							15	<1
Annual Totals	1778	954	6502	1076	353	160	395	426	203	11847	
Annual PTF*	70.6	93.0	85.4	84.8	85.7	81.2	98.5	84.5	54.0	82.7	
(Annual totals of all females)***	2519	1026	7618	1269	412	197	401	504	376	14322	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

HOMESTEAD AFB FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>						2	10	14	2	28	<1
<i>melanlon</i>							48	135	206	2252	67.9
<i>sollicitans</i>		65		860	505	433					
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>				48				2		50	1.5
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>				5		7		6	2	20	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>		2			2	1				5	<1
<i>Coquillettidia</i>											
<i>perturbans</i>		1						6	24	31	<1
<i>Culex</i>											
<i>negripalpus</i>	2								13	15	<1
<i>pipiens</i> **		2				6	6	9	4	27	<1
<i>restuans</i>											
<i>salinarius</i>		2		36	6	9	3	2	2	62	1.8
<i>tarsalis</i>											
<i>Quliseta</i>											
<i>melanura</i>											
<i>Psorophora</i>	12	267				130	67	76	186	748	22.5
<i>columbica</i>				2	8						
<i>discolor</i>											
Annual Totals	14	339		951	521	588	136	250	439	3238	
Annual PTF*	100	98.8		99.5	97.4	99.2	91.9	94.0	95.2	97.6	
(Annual totals of all females)***	14	343		956	535	593	148	266	461	3316	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

## HURLBURT FIELD FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti					6					6	<1
Aedes dorsalis											
Aedes melanimon				2		4	34			42	1.4
Aedes sollicitans		4	2	18	36					58	1.9
Aedes taeniorhynchus										4	<1
Aedes triseriatus			4								
Aedes trivittatus											
Aedes vexans	101		261	63	35	8	20			488	16.1
Anopheles crucians		56	149	33	219	253	8			718	23.7
Anopheles freeborni											
Anopheles quadrimaculatus	4		4	4	3					15	<1
Coquillettidia perturbans	1		1		1		1			4	<1
Culex											
Culex nigripalpus	1		6				1			8	<1
Culex pipiens**	81		88	7	2	33	18			229	7.6
Culex restuans	2		11							13	<1
Culex salinarius	23		151	88	299	79	11			651	21.5
Culex tarsalis				2						2	<1
Culiseta melanura	1									1	<1
Psorophora columbiana											
Psorophora discolor	52		104	62	79	32	65			394	13.0
Annual Totals	327		781	279	680	409	158			2634	
Annual PTF*	92.4		84.8	88.3	84.3	88.0	95.2			87.0	
(Annual Totals of all females)***	354		921	316	807	465	166			3029	

\*Percent total females

\*\*includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

MACDILL AFB FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>						47	93	7		147	<1.0
<i>solicitans</i>						8671	10736	249		19656	80.4
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>						85	19	11		115	<1.0
<i>freeborni</i>						2	3			5	<1.0
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>						2				2	<1.0
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>						236	280	12		528	2.2
<i>pipiens**</i>						1	5			6	<1.0
<i>restuans</i>											
<i>salinarius</i>						21	60	73		154	<1.0
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>						1648	1231	4		2883	11.8
<i>columblae</i>											
<i>discolor</i>											
Annual Totals						10713	12427	356		23496	
Annual PTF*						95.2	97.1	90.1		96.1	
(Annual totals of all females)***						11251	12802	395		24448	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

MCCOY AFB FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti											
Aedes dorsalis											
Aedes melanlimon											
Aedes sollicitans											
Aedes taeniorhynchus		2								2	1.1
Aedes triseriatus											
Aedes trivittatus											
Aedes vexans											
Anopheles crucians		7	3							10	5.5
Anopheles freeborni											
Anopheles quadrimaculatus											
Coquillettidia perturbans		1								1	<1
Culex nigripalpus	1	53								54	29.5
Culex pipiens**											
Culex restuans											
Culex salinarius		10	26							36	19.7
Culex tarsalis											
Culiseta melanura											
Psorophora columblae	12	21	14							47	25.7
Psorophora discolor											
Annual Totals	13	94	43							150	
Annual PTF*	76.5	90.4	69.4							82.0	
(Annual totals of all females)***	17	104	62							183	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed



PATRICK AFB FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>	778	877	431	5343	1467	1369	284	41	93	10683	34.3
<i>taeniorhynchus</i>	21	412	148	3825	701	844	563	83	86	6683	21.5
<i>triseriatus</i>				1			63	2		66	<1
<i>trivittatus</i>											
<i>vexans</i>		2	8	15	27	163		3	3	221	<1
<i>Anopheles</i>											
<i>crucians</i>		6	26	45	27	41	76	6	24	251	<1
<i>freeborn</i>											
<i>quadrimaculatus</i>			1	4	1				1	7	<1
<i>Coquillettidia</i>											
<i>perturbans</i>	2			2		29			2	35	<1
<i>Culex</i>											
<i>nigripalpus</i>		7	4				1		149	161	<1
<i>pipiens</i> **		1	76	432	9	55	78	18	95	764	2.3
<i>restuans</i>											
<i>salinarius</i>	4	8	158	2945	129	203	113	16	1	3577	11.5
<i>tarsalis</i>			3							3	<1
<i>Culiseta</i>											
<i>melanura</i>	1									1	<1
<i>Psorophora</i>											
<i>columblae</i>	129	178	445	2549	764	1305	917	748	1161	8196	26.3
<i>discolor</i>											
Annual Totals	935	1491	1300	15161	3125	4009	2095	917	1615	30648	
Annual PTF#	93.5	97.5	97.3	99.3	98.6	95.8	99.3	100	98.7	98.4	
(Annual totals of all females)***	1000	1530	1336	15263	3169	4185	2110	917	1636	31146	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

TYNDALL AFB FLORIDA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti											
dorsalis											
melanimon				24	17		37	163		241	1.7
solicifans				847	6		4			1055	7.5
taeniorhynchus	117		81								
triseriatus											
trivittatus	2		11	66	15		16	210		320	2.2
vexans											
Anopheles crucians											
freeborni	62		155	73	139	25	47	415		916	6.5
quadrimaculatus	1		1		18		1			21	<1
Coquillettidia perturbans											
	12		23	22			4			61	<1
Culex nigripalpus											
pipiens**	13		20		3					36	<1
restuans	5		6	14	58	4	257	464		808	5.7
salinarius	5		2							7	<1
tarsalis	80		1165	1657	1206		28	109		4245	30.4
Culiseta melanura										1	<1
Psorophora columblae											
discolor	8		1	412	171	343	2220	1514		4669	33.4
Annual Totals	305		1465	3116	1633	372	2614	2875		12380	
Annual PTF*	97.4		75.1	91.3	90.1	97.1	92.2	88.4		88.7	
(Annual totals of all females)***											
	313		1951	3413	1812	383	2836	3253		13961	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

MOODY AFB GEORGIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>							1			1	<1
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>			1	7					21	29	<1
<i>taeniorhynchus</i>		1		3					34	39	<1
<i>triseriatus</i>			4					44	5	54	<1
<i>trivittatus</i>				1	3	6	4		1	15	<1
<i>vexans</i>		8	42	34	2	9	173	451	79	818	3.5
<i>Anopheles</i>											
<i>crucians</i>	4	94	1770	110	12	105	48	695	2263	5101	22.0
<i>freeborni</i>											
<i>quadrimaculatus</i>		2	17	9			5	38	176	247	1.0
<i>Coquillettidia</i>											
<i>perturbans</i>		39	241	309	12	884	750	1194	2286	5715	24.7
<i>Culex</i>											
<i>nigripalpus</i>		50	72		11		32	491	327	983	4.2
<i>pipiens**</i>		127	165	177		20	436	1146	1856	3927	16.9
<i>restuans</i>		5	45					1	4	55	<1
<i>salinarius</i>		25	280	352	48	9	419	429	440	2002	8.6
<i>tarsalis</i>			1	3				13		17	<1
<i>Culiseta</i>											
<i>melanura</i>		9	10	2	1	3	66	8		99	<1
<i>Psorophora</i>											
<i>columbiae</i>		101	191	101	76	99	384	184	510	1646	7.1
<i>discolor</i>											
Annual Totals	4	461	2839	1128	165	1135	2320	4694	8002	20748	
Annual PTF#	100	75.6	84.3	86.3	40.7	93.6	89.2	94.5	92.6	89.8	
(Annual totals of all females)***	4	610	3368	1307	405	1212	2601	4968	8638	23113	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

ROBINS AFB GEORGIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes aegypti					3					3	<1
Aedes dorsalis											
Aedes melanom					9			32		76	<1
Aedes sollicitans		35								23	<1
Aedes taeniorhynchus		21							21	29	<1
Aedes triseriatus						7			44	150	<1
Aedes trivittatus		106							521	2858	7.2
Aedes vexans		1233	17	235	194	141	122	394			
Anopheles crucians	11	2510	171	372	437	599	123	299	195	4717	12.1
Anopheles freeborni											
Anopheles quadrimaculatus		898	10	302	109	785	108	105	164	2481	6.3
Coquillettidia perturbans		849	3	37	562	191	14	23	24	1703	4.4
Culex nigripalpus	1	174	5		1			5	200	386	<1
Culex pipiens**	3	3541	2825	1167	261	70	46	53	512	8478	21.7
Culex restuans		373			13					386	<1
Culex salinarius		4465	57	1286	1898	60	20	7	91	7884	20.2
Culex tarsalis						4		5		9	<1
Culiseta melanura	2	41		1	2					46	<1
Psorophora columbiana		900				62	27	18	100	2305	5.9
Psorophora discolor										1	<1
Annual Totals	18	15147	3097	4191	3889	1920	460	941	1872	31535	
Annual PTF#	47.4	89.0	96.9	88.2	82.8	35.6	68.7	80.1	87.3	80.7	
(Annual totals of all females)***	38	17026	3197	4751	4696	5399	670	1175	2144	39096	

\*Percent total females

\*\*includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

MOUNTAIN HOME AFB IDAHO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanomon</i>											
<i>solicifans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	18									18	3.2
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrinaculatus</i>											
<i>Coquillettidia perturbans</i>	106									106	18.9
<i>Culex nigripalpus</i>											
<i>pipiens</i> **	79					1				80	14.2
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>		63				220				283	50.4
<i>Culiseta melanura</i>											
<i>Psorophora columbiae</i>											
<i>discolor</i>											
Annual Totals	203	63				221				487	
Annual PTF*	89.8	55.8				99.1				86.7	
(Annual totals of all females)***	226	113				223				562	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

CHANUTE AFB ILLINOIS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>			2	2					1	5	<1
<i>Aedes dorsalis</i>											
<i>Aedes melanotarsus</i>			4							4	<1
<i>Aedes sollicitans</i>											
<i>Aedes triseriatus</i>								14	1	15	<1
<i>Aedes trivittatus</i>								19	705	724	12.1
<i>Aedes vexans</i>	1		154	164	80	7	105	1680	562	2753	46.0
<i>Anopheles crucians</i>						1				1	<1
<i>Anopheles freeborni</i>											
<i>Anopheles quadrimaculatus</i>				1				6	8	15	<1
<i>Coquillettidia perturbans</i>									1	1	<1
<i>Culex</i>											
<i>Culex nigripalpus</i>											
<i>Culex pipiens</i> **			3	8	2	14	53	219	892	1191	19.9
<i>Culex restuans</i>	2					13				15	<1
<i>Culex salinarius</i>	3		4	1	15		21	111	679	834	13.9
<i>Culex tarsalis</i>				2	9		19	26	13	69	1.2
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>	1	1	38	40	26		6	6	28	146	2.4
<i>Psorophora discolor</i>			1							1	<1
Annual Totals	7	1	206	218	132	35	204	2081	2890	5774	
Annual PTF*	77.8	100.0	95.4	95.6	96.4	67.3	95.8	95.4	98.2	96.5	
(Annual totals of all females)***	9	1	216	228	137	52	213	2182	2943	5981	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

## SCOTT AFB ILLINOIS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>							1	4		5	<1
<i>terniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>							3178	112		3290	37.7
<i>vexans</i>					8	749		983	13	1753	20.1
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>					13	19	1	1		34	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>				1	5	183	405	36	4	634	7.3
<i>restuans</i>											
<i>salinarius</i>				1	9	10	27	16		63	<1
<i>tarsalis</i>					3	10	76			89	1.0
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>				5	112	1562	786	77	2	2544	29.2
<i>discolor</i>					1					1	<1
Annual Totals				7	151	2533	4474	1229	19	8413	
Annual PTF*				87.5	94.4	94.2	97.3	99.0	73.1	96.4	
(Annual totals of all females)***				8	160	2689	4600	1242	26	8725	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

GRISCOM AFB INDIANA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanleon</i>											
<i>sollicitans</i>	1									1	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>	2									2	<1
<i>trivittatus</i>	3									3	<1
<i>vexans</i>	162		1244	666		6	416		70	2564	56.4
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>			1	1			2		2	6	<1
<i>Coquillettidia perturbans</i>				3					1	4	<1
<i>Culex nigripalpus</i>											
<i>pipiens</i> **	86		308	411		93	140		45	1083	23.8
<i>restuans</i>	88			1						89	2.0
<i>salinarius</i>	43		11	101		27	217		59	458	10.1
<i>tarsalis</i>			3	1		2	24			30	<1
<i>Culiseta melanura</i>											
<i>Psorophora columbica</i>	33										
<i>discolor</i>	1		65	3		7	2		45	155	3.4
Annual Totals	419		1632	1187		135	801		222	4396	
Annual PTF#	94.6		96.3	98.1		99.3	97.3		91.7	96.7	
(Annual totals of all females)***	443		1694	1210		136	823		242	4548	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed



FORBES AFB KANSAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>	101									101	23.9
<i>teenlorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	39	6	8							53	12.6
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>											
<i>Culex nigripalpus</i>											
<i>pipiens**</i>	7		1							8	1.9
<i>restuans</i>											
<i>salinarius</i>		3	2							5	1.2
<i>tarsalis</i>	123	14	11							148	35.1
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>	35	3								38	9.0
<i>discolor</i>	48	1								49	11.6
Annual Totals	353	27	22							402	
Annual PTF*	97.0	90.0	78.6							95.3	
(Annual totals of all females)***	364	30	28							422	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

MC CONNELL AFB KANSAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes aegypti											
dorsalis											
melanoch											
solicifans											
taeniorhynchus											
triseriatus											
trivittatus											
vexans						46				46	75.4
Anopheles crucians											
freeborni											
quadrimaculatus											
Coquillettidia perturbans											
Culex nigripalpus											
pipiens**											
restuans											
salinarius											
tarsalis											
Culiseta melanura											
Psorophora columbiae											
discolor											
Annual Totals						46				46	
Annual PTF#						75.4				75.4	
(Annual totals of all females)***						61				61	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

BARKSDALE AFB LOUISIANA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>	7		1				1			9	<1
<i>sollicitans</i>											
<i>taeniorhynchus</i>	25									25	<1
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	487	4	352	1	654	1021	665	344	14	3542	24.7
<i>Anopheles crucians</i>	49	2	86	10	110	16			5	278	1.9
<i>freeborni</i>											
<i>quadrimaculatus</i>	616	5	501	2	583	652	439	39	97	2934	20.4
<i>Coquillettidia perturbans</i>	8	2			14	39	27		1	91	<1
<i>Culex nigropalpus</i>	38		2		4				6	50	<1
<i>pipiens</i> **	110		5	1	56	44	87	1	5	309	2.1
<i>restuans</i>	4	2			13					19	<1
<i>salinarius</i>	3	3	36	15	203	7	40	5		312	2.2
<i>farsalis</i>	3									3	<1
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>	802	10	482	34	2194	826	162	54	1	4565	31.8
<i>discolor</i>	23		2		2		8			35	<1
Annual Totals	2175	28	1467	63	3833	2605	1429	443	129	12172	
Annual PTF*	92.4	82.4	65.8	86.3	86.3	94.0	82.0	94.2	52.0	84.7	
(Annual totals of all females)***	2355	34	2228	73	4441	2771	1743	470	248	14363	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

ENGLAND AFB LOUISIANA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes aegypti											
dorsalis											
melanimon						2				2	<1
solicitans						1		5	1	7	<1
taeniorhynchus											
triseriatus											
trivittatus											
vexans	35		35	35	517	294		42	43	964	10.9
Anopheles crucians											
freeborni						15		3	1	73	<1
quadrimaculatus											
Coquillettidia perturbans										69	<1
Culex nigripalpus											
pipiens									16	16	<1
restuans						17		17	5	111	1.3
salinarius											
farsalis						1		24	14	167	1.9
Culiseta melanura											
Psorophora columbiana											
discolor											
Annual Totals			356	1825	1274	3338		122	335	7250	81.8
Annual PTF#			436	2012	1922	3668		213	415	8666	
(Annual totals of all females)			97.5	98.2	95.0	99.0		99.5	97.9	97.8	97.7
			447	2048	2023	3706		214	424	8862	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

LORING AFB MAINE

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>			5							5	100
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **											
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals			5							5	
Annual PTF*			100							100	
(Annual totals of all females)***			5							5	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

ANDREWS AFB MARYLAND

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>				1						1	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	501	9	16	24				15		565	40.8
<i>Anopheles</i>											
<i>crucians</i>			1							1	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>				1						1	<1
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **	22	74	182	39				11		328	23.7
<i>restuans</i>	82	2	14							98	7.1
<i>salinarius</i>	216	15	1							232	16.8
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>				3	1			3		22	1.6
<i>discolor</i>											
Annual Totals	832	105	218	64				29		1248	
Annual PTF*	87.2	90.5	99.1	98.5				100		90.2	
(Annual totals of all females)***	954	116	220	65				29		1384	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

BOLLING AFB MARYLAND

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>											
<i>teeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborn</i>											
<i>quadrimeulatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigritipus</i>											
<i>pipiens</i> **											100
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals								1		1	
Annual PTF*								100		100	100
(Annual totals of all females)***								1		1	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

HANSCOM AFB MASSACHUSETTS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>					1					1	<1
<i>solicifans</i>											
<i>teenforhynchus</i>								1		2	<1
<i>triseriatus</i>			1								
<i>trivittatus</i>											
<i>vexans</i>	7	117	649	89	665	64	58	157	339	2125	40.7
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>			5	1						7	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>	15	6	14	72	5	2		8	3	125	2.4
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>	31	76	283	55	88	16	5	11	13	578	11.1
<i>restuans</i>	12	38	24							74	1.4
<i>sallinaris</i>	2	94	901	160	63	51	34	30	6	1341	25.7
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbica</i>											
<i>discolor</i>											
Annual Totals	67	332	1877	377	822	133	97	187	361	4253	
Annual PTF*	74.4	76.5	73.0	89.5	98.8	87.5	96.0	75.1	78.3	81.5	
(Annual totals of all females)***	90	434	2571	421	832	152	101	249	461	5221	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed



OTIS AFB MASSACHUSETTS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis											
melanimon											
sollicitans											
taeniorhynchus											
triseriatus											
trivittatus											
vexans											
Anopheles											
crucians											
freeborni											
quadrinaculatus											
Coquillettidia											
perturbans											
Culex											
nigripalpus											
pipiens**											
restuans										1	100.0
salinarius		1									
tarsalis											
Culiseta											
melanura											
Psorophora											
columblae											
discolor										1	
Annual Totals		1									
Annual PTF*		100								100.0	
(Annual totals of all females)***		1								1	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

WESTOVER AFB MASSACHUSETTS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	143					5	3	28	10	189	30.2
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>	1									1	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>	113								4	117	18.7
<i>Culex</i>											
<i>nigripalpus</i>							1	1		97	15.5
<i>pipiens**</i>	95									94	15.0
<i>restuans</i>	94									12	1.9
<i>salinarius</i>	11						1				
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>	39									39	6.2
<i>discolor</i>											
Annual Totals	496					5	5	29	14	549	
Annual PTF*	93.9					38.5	83.3	78.4	33.3	87.7	
(Annual totals of all females)***	528					13	6	37	42	626	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

K. I. SAWYER AFB MICHIGAN

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>		1		16					1	18	12.1
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>		1								1	<1
<i>Coquillettidia</i>											
<i>perturbans</i>	2	16		5					15	38	25.5
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **	6	1				4			3	14	9.4
<i>restuans</i>	6									6	4.0
<i>salinarius</i>		2		3						5	3.4
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals	14	21	0	24	0	4		0	19	82	
Annual PTF*	66.7	36.2	0	100	0	100		0	52.8	55.0	
(Annual totals of all females)***	21	58	0	24	6	4		0	36	149	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

## KINCHELOE AFB MICHIGAN

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>			2	2	2	6	8			20	1.1
<i>trivittatus</i>				1	8					9	<1.0
<i>vexans</i>				15	2					17	<1.0
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>					1					1	<1.0
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>	107		57	1194	46	182	44			1630	86.8
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>	4			7	10	2	1			24	1.3
<i>restuans</i>											
<i>salinarius</i>			1	1		4				6	<1.0
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>					6					6	<1.0
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals	111		60	1220	75	194	53			1713	
Annual PTF*	91.7		84.5	98.2	78.1	97.5	35.6			91.2	
(Annual totals of all females)***	121		71	1242	96	199	149			1878	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

WURTSMITH AFB MICHIGAN

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>		1								1	<1
<i>melanimon</i>											
<i>sollicitans</i>											
<i>taeniorhynchus</i>					3	16				3	<1
<i>triseriatus</i>										16	<1
<i>trivittatus</i>											
<i>vexans</i>	186	261		351	142	458		26	3	1427	46.7
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrimeculatus</i>		29	1	45	11	55		26		167	5.5
<i>Coquillettidia perturbans</i>		6	33	941	68	104		1	14	1167	38.2
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>		12	28	14	38	13		35	7	147	4.8
<i>restuans</i>		2	2							4	<1
<i>salinarius</i>		8							4	12	<1
<i>tarsalis</i>											
<i>Culiseta melanura</i>											
<i>Psorophora columblae discolor</i>											
Annual Totals		244	325	1351	262	646		88	28	2944	
Annual PTF*		94.9	92.1	96.8	93.2	99.1		98.9	100.0	96.3	
(Annual totals of all females)***		257	353	1396	281	652		89	28	3056	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

DULUTH IAP MINNESOTA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanoxon</i>											
<i>sollicitans</i>										68	3.5
<i>taeniorhynchus</i>			1	67							
<i>triseriatus</i>											
<i>trivittatus</i>		2	2	60	62	131	26	16		299	15.5
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>			1	4	4		2			11	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>		15	47	552	85	36	17	4		756	39.2
<i>Culex</i>											
<i>negripalpus</i>											
<i>pipiens</i> **			2	2	4			1		9	<1
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>					5					5	<1
<i>Culiseta</i>											
<i>melanura</i>				1				7		8	<1
<i>Psorophora</i>											
<i>columblae</i>											
<i>discolor</i>											
Annual Totals		17	53	686	160	167	45	28		1156	
Annual PTF*		73.9	93.0	63.1	33.9	91.8	76.3	54.9		59.9	
(Annual totals of all females)***		23	57	1087	472	182	59	51		1931	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

COLUMBUS AFB MISSISSIPPI

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>			1							1	<1
<i>dorsalis</i>											
<i>melanimon</i>									25	25	<1
<i>solicifans</i>						4	1	11	5	21	<1
<i>taeniorhynchus</i>			87						193	292	1.9
<i>triseriatus</i>	12										
<i>trivittatus</i>											
<i>vexans</i>	29		590	208	40	147	667	1518	270	3459	23.7
<i>Anopheles</i>											
<i>crucians</i>	6	3	30	82	7	21	6	27	1	183	1.3
<i>freeborni</i>											
<i>quadrinaculatus</i>	1	8	124	120	5	78	14	123	33	506	3.5
<i>Coquillettidia</i>											
<i>perturbans</i>	54	30	9	63	5	8	8		7	184	1.3
<i>Culex</i>											
<i>nigripalpus</i>			1							1	<1
<i>pipiens**</i>		1	149	184	16	16	144	462	140	1112	7.6
<i>restuans</i>			2				27			29	<1
<i>salinarius</i>		1	115	105	34	2	75	100	50	482	3.3
<i>tarsalis</i>							2	66		68	<1
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>	82		651	1898	225	293	470	401	504	4524	31.0
<i>columblae</i>			3							3	<1
<i>discolor</i>											
Annual Totals	184	43	1762	2660	332	569	1414	2708	1228	10900	
Annual PTF*	88.0	86.0	88.9	94.0	93.3	85.6	58.1	58.8	82.9	74.6	
(Annual totals of all females)***	209	50	1982	2830	356	665	2434	4605	1482	14613	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

KEESLER AFB MISSISSIPPI

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>					1					1	<1
<i>Aedes dorsalis</i>											
<i>Anopheles melanimon</i>											
<i>Anopheles sollicitans</i>	119	10	74	205	181	96	385	91	1	1162	7.8
<i>Anopheles triseriatus</i>		2		13	5	5	78	7		110	<1
<i>Anopheles trivittatus</i>			1	1					1	3	<1
<i>Culex vexans</i>	35	311	172	1299	303	230	2004	261	59	4672	31.4
<i>Anopheles crucians</i>		7	15	102	166	13	85	3	8	399	2.7
<i>Anopheles freeborni</i>											
<i>Anopheles quadrimaculatus</i>			10	64	48				3	125	<1
<i>Coquillettidia perturbans</i>				19	1				15	35	<1
<i>Culex nigripalpus</i>	19	20			8				5	52	<1
<i>Culex pipiens</i> **		100	212	553	284	172	677	67	85	2130	14.4
<i>Culex restuans</i>	1	7	2		13					23	<1
<i>Culex salinarius</i>		107	36	1143	1422	183	968	31	22	3912	26.3
<i>Culex tarsalis</i>			4				1			5	<1
<i>Culiseta melanura</i>											
<i>Psorophora columblae</i>	79	10	114	172	450	36	138	1	1	1001	6.7
<i>Psorophora discolor</i>											
Annual Totals	251	574	640	3571	2882	735	4336	461	200	13650	
Annual PTF*	98.4	88.3	78.0	94.0	88.1	86.3	95.1	98.1	98.0	91.7	
(Annual totals of all females)***	255	650	821	3798	3273	852	4561	470	204	14884	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed



RICHARDS-GEBAUR AFB MISSOURI

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>			1							1	<1
<i>melanoxon</i>											
<i>solicitans</i>			2		1	1	3			7	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	6		58		53	10	388			515	36.4
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>	2									2	<1
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **	10		7		1		400			418	29.6
<i>restuans</i>	7	1				2	4			14	<1
<i>salinarius</i>	13	13	6		10	4	62			95	6.7
<i>tarsalis</i>	10	49	4		12	8	94			177	12.5
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbatae</i>	28	1			1	2	57			89	6.3
<i>discolor</i>							30			30	2.1
Annual Totals	47	80	78		78	27	1038			1348	
Annual PTF*	85.5	87.9	100.0		96.3	90.0	96.3			95.4	
(Annual totals of all females)***	55	91	78		81	30	1078			1413	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

WHITEMAN AFB MISSOURI

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis											
melanimon											
sollicitans											
taeniorhynchus											
triseriatus											
trivittatus											
vexans						5	6			11	8.5
Anopheles											
crucians											
freeborni											
quadrimaculatus						1				1	<1
Coquillettidia											
perturbans											
Culex											
nigripalpus											
pipiens**						2	24			26	20.2
restuans											
salinarius											
tarsalis						5	14			19	14.7
Culiseta											
melanura											
Psorophora											
columbiae						3	30			33	25.6
discolor											
Annual Totals						16	74			90	
Annual PTF*						45.7	78.7			69.8	
(Annual totals of all females)***						35	94			129	

\*Percent total females

\*\*includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

## MALSTROM AFB MONTANA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>	7	14	30	43	10	1	7		27	139	13.0
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	3	1	1	1					9	15	1.4
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i> **											
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>	58	62	34	207	27	15	20		122	545	51.3
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>											
<i>discolor</i>											
Annual Totals	68	77	65	251	37	16	27		158	699	
Annual PTF*	38.4	63.6	46.8	74.7	68.5	80.0	87.1		85.9	65.8	
(Annual totals of all females)***	177	121	139	336	54	20	31		184	1062	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

OFFUTT AFB NEBRASKA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti						88	5	18	6	117	2.4
dorsalis											
melanimon						1	26	10	7	44	<1
sollicitans											
taeniorhynchus											
triseriatus								1		1	<1
trivittatus											
vexans						229	291	871	795	2186	45.5
Anopheles crucians											
freeborni											
quadrimaculatus							5	8	7	20	<1
Coquillettidia perturbans						2				2	<1
Culex nigripalpus											
pipiens**						116	156	174	48	494	10.3
restuans											
salinarius						124	96	80	83	383	8.0
tarsalis						207	408	87	168	870	18.1
Culiseta melanura									1	1	<1
Psorophora columblae						27	47	50	13	137	2.9
discolor						1	2			3	<1
Annual Totals						795	1036	1299	1128	4258	
Annual PTF*						93.5	81.2	90.6	90.5	88.6	
(Annual totals of all females)***						850	1275	1434	1247	4806	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

PEASE AFB NEW HAMPSHIRE

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanopus</i>											
<i>sollicitans</i>	60	50	187		1835	18	1544		337	4031	29.5
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	53	102	592		4816	27	255		90	5935	43.5
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrinaculatus</i>	6	151	11		272		1		4	445	3.2
<i>Coquillettidia</i>											
<i>perturbans</i>	73	18	12		64	225	1228		101	1721	12.6
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>	7	11	1		129		50		68	266	1.9
<i>restuans</i>	8	2					21			31	<1
<i>salinarius</i>	1	31	24		266		10		22	354	2.5
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>									1	1	<1
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>											
Annual Totals	208	365	827	0	7382	270	3109		623	12784	
Annual PTF*	76.5	58.5	85.6		99.3	74.8	93.6		94.4	93.7	
(Annual totals of all females)***	272	624	966	0	7435	361	3320		660	13638	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

MC GUIRE AFB NEW JERSEY

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>						2	5	38	11	56	3.5
<i>sollicitans</i>											
<i>taeniorhynchus</i>							1		3	4	<1
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>						27	8	90	182	307	19.0
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>							1		10	11	<1
<i>Culex nigripalpus</i>											
<i>pipiens**</i>						51	37	297	263	648	40.1
<i>restuans</i>									2	2	<1
<i>salinarius</i>						25	30	176	289	520	32.2
<i>tarsalis</i>											
<i>Culiseta melanura</i>											
<i>Psorophora columbica</i>								8	12	20	1.2
<i>discolor</i>											
Annual Totals						105	82	609	772	1568	
Annual PTF*						97.2	93.2	99.0	96.1	97.1	
(Annual totals of all females)***						108	88	615	803	1614	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

## CANNON AFB NEW MEXICO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>										8	<1
<i>dorsalis</i>		3	5								
<i>melanion</i>											
<i>solicifans</i>		454	164	60					63	741	10.8
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>				83						83	<1
<i>vexans</i>		248	932		181		80	22	105	1588	23.2
<i>Anopheles</i>											
<i>cruciatus</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>piplens**</i>				1						1	<1
<i>restuans</i>											
<i>salinarius</i>		12								12	<1
<i>tarsalis</i>		427	652	1136	276		318	65	387	3261	47.6
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbica</i>		20	2	12			23	65	5	127	1.9
<i>discolor</i>		1	1		2					4	<1
Annual Totals		1165	1776	1292	459		421	152	560	5825	
Annual PTF*		79.3	97.1	85.6	88.8		75.9	69.1	74.1	85.0	
(Annual totals of all females)***		1469	1828	1509	517		555	220	756	6854	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

HOLLOMAN AFB NEW MEXICO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes aegypti	27	9	2	1		21	333	381	790	1564	43.5
Aedes dorsalis											
Aedes melanom	65	2	1			7	15	14	62	166	4.6
Aedes sollicitans											
Aedes taeniorhynchus											
Aedes triseriatus											
Aedes trivittatus											
Aedes vexans	2	1			1	8	17	13	32	74	2.1
Anopheles crucians											
Anopheles freeborni									2	2	<1
Anopheles quadrimaculatus											
Coquillettidia perturbans											
Culex nigripalpus											
Culex pipiens**							2			2	<1
Culex restuans											
Culex salinarius		1				1	4		3	9	<1
Culex tarsalis	45	12	5	62	68	258	194	216	589	1449	40.3
Culiseta melanura											
Psorophora columbiana	20										
Psorophora discolor							1		6	27	<1
Annual Totals	159	25	8	63	69	295	568	624	1484	3295	
Annual PTF#	64.4	58.1	72.7	91.3	75.8	97.4	97.1	96.0	92.9	91.6	
(Annual totals of all females)***	247	43	11	69	91	303	585	650	1597	3596	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed



## KIRTLAND AFB NEW MEXICO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>		4	4		2			2		12	1.9
<i>dorsalis</i>											
<i>melanimon</i>		4	24					1		29	4.6
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>		2	3		24		11	43		83	13.3
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>								1		1	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>		31	16		15		7	13		82	13.1
<i>pipiens</i> **		1								1	<1
<i>restuans</i>		16	1		3		4	9		33	5.3
<i>salinarius</i>		58	108		111		24	28		329	52.7
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>											
<i>discolor</i>											
Annual Totals		116	156		155		46	97		570	
Annual PTF*		92.1	94.0		85.2		100.0	93.3		91.3	
(Annual totals of all females)***		126	166		182		46	104		624	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

GRIFFISS AFB NEW YORK

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>			2							2	<1
<i>dorsalis</i>											
<i>melanops</i>									1	1	<1
<i>sollicitans</i>											
<i>taeniorhynchus</i>						4				4	<1
<i>triseriatus</i>			3							3	<1
<i>trivittatus</i>											
<i>vexans</i>	53	20	150	332	54	28		24	186	847	68.4
<i>Anopheles</i>											
<i>crucians</i>									1	1	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>			6	11	3				4	24	1.9
<i>Coquillettidia</i>											
<i>perturbans</i>	6		6	9	9				8	38	3.1
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>	4	2	25	14	11	16	10	9	57	148	12.0
<i>restuans</i>											
<i>salinarius</i>	1		3	7	1		5	15	27	59	4.8
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>metanura</i>											
<i>Psorophora</i>											
<i>columbica</i>											
<i>discolor</i>											
Annual Totals	64	22	195	373	78	48	15	48	284	1127	
Annual PTF*	81.0	78.6	93.8	98.2	79.6	77.4	100.0	100.0	88.8	91.0	
(Annual totals of all females)***	79	28	208	380	98	62	15	48	320	1238	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

HANCOCK FIELD NEW YORK

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>			4		4	2				10	<1
<i>Aedes dorsalis</i>											
<i>Aedes melanom</i>			1							25	<1
<i>Aedes sollicitans</i>	24										
<i>Aedes taeniorhynchus</i>											
<i>Aedes triseriatus</i>											
<i>Aedes trivittatus</i>											
<i>Aedes vexans</i>	25	207	2353	1668	2312	16123	2329	26	206	25249	78.0
<i>Anopheles crucians</i>											
<i>Anopheles freeborni</i>											
<i>Anopheles quadrimaculatus</i>		6	10	2	3	3	4		4	32	<1
<i>Coquillettidia perturbans</i>	7	2	193	38	47	2587	2745	40	37	5696	17.6
<i>Culex</i>											
<i>Culex nigripalpus</i>											
<i>Culex pipiens</i> **	2	47	93	67	75	55	64	8	16	427	1.3
<i>Culex restuans</i>	3	5	26							34	<1
<i>Culex salinarius</i>		31	81	14	15		8		16	165	<1
<i>Culex tarsalis</i>											
<i>Culiseta melanura</i>		26	2	1	3					32	<1
<i>Psorophora columbiana</i>											
<i>Psorophora discolor</i>											
Annual Totals	61	324	2763	1790	2459	18770	5150	74	279	31670	
Annual PTF*	32.4	97.0	94.8	98.9	97.7	98.4	99.6	92.5	94.6	97.8	
(Annual totals of all females)***	188	334	2915	1809	2518	19080	5169	80	295	32388	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

PLATTSBURGH AFB NEW YORK

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>egypti</i>		10							1	11	<1
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>								1		1	<1
<i>taeniorhynchus</i>										9	<1
<i>triseriatus</i>	4	1	4								
<i>trivittatus</i>											
<i>vexans</i>	178	2937	278		861	2931	107	637	11	7940	72.5
<i>Anopheles</i>											
<i>crucians</i>					3					3	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>	3	45	2		3					53	<1
<i>Coquillettidia</i>											
<i>perturbans</i>	119	413	18		170	25		117	26	888	8.1
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>	40	187	28		83	33	47	249	8	675	6.2
<i>restuans</i>	98	276	2							376	3.4
<i>salinarius</i>	8	191	4		18				1	222	2.0
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>		1								1	<1
<i>Psorophora</i>											
<i>columblae</i>											
<i>discolor</i>											
Annual Totals	450	4061	336		1138	2989	154	1004	47	10179	
Annual PTF*	83.6	89.8	72.9		98.7	98.6	91.7	98.0	97.9	93.0	
(Annual totals of all females)***	538	4524	461		1153	3030	168	1024	48	10946	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

POPE AFB NORTH CAROLINA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>											
<i>taeniorhynchus</i>				5	2	2	29			38	2.9
<i>triseriatus</i>							1			1	<1
<i>trivittatus</i>											
<i>veronis</i>				46	54	8	207			315	23.6
<i>Anopheles</i>											
<i>crucians</i>				3	7	1	8			19	1.4
<i>freeborni</i>											
<i>quadrifasciatus</i>					1		4			5	<1
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens</i>				101	9	5	119			234	17.6
<i>restuans</i>					5					5	<1
<i>salinarius</i>				200	52		48			300	22.5
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>					1					1	<1
<i>Psorophora</i>											
<i>columbica</i>				198	77	19	49			343	25.8
<i>discolor</i>											
Annual Totals				553	208	35	465			1261	
Annual PTF*				95.7	88.5	87.5	97.1			94.7	
(Annual totals of all females)***				578	235	40	479			1332	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

SEYMOUR JOHNSON AFB NORTH CAROLINA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes											
aegypti											
dorsalis											
melanimon								1		1	<1
sollicitans											
taeniorhynchus								1		1	<1
triseriatus											
trivittatus								64		64	4.2
vexans											
Anopheles											
crucians								9		9	<1
freeborni											
quadrinaculatus								35		35	2.3
Coquillettidia											
perturbans											
Culex											
nigripalpus								91		91	6.0
pipiens**											
restuans											
salinarius								114		114	7.6
tarsalis											
Culiseta											
melanura											
Psorophora								1045		1045	69.7
columbiae											
discolor											
Annual Totals								1360		1360	
Annual PTF*								90.7		90.7	
(Annual totals of all females)***								1499		1499	

\*Percent total females

\*\*includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

GRAND FORKS AFB NORTH DAKOTA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79*	Species Totals	Species PTF**
<i>Aedes aegypti</i>		17	137	49	1034	661	7096	11490	323864	344348	79.5
<i>Aedes dorsalis</i>											
<i>Aedes melanimon</i>			5				607	126		738	<1
<i>Aedes sollicitans</i>											
<i>Aedes triseriatus</i>		7			7					14	<1
<i>Aedes trivittatus</i>					3					3	<1
<i>Aedes vexans</i>		38	68	16	1106	1667	1452	165	23528	27840	6.4
<i>Anopheles crucians</i>											
<i>Anopheles freeborni</i>							7	1		8	<1
<i>Anopheles quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>			1							1	<1
<i>Culex nigripalpus</i>											
<i>Culex pipiens</i> ***			6		1	4				11	<1
<i>Culex restuans</i>											
<i>Culex salinarius</i>		1	1			2		1	212	217	<1
<i>Culex tarsalis</i>		5	29	13	1640	114	385	319	7762	10267	2.3
<i>Culiseta melanura</i>											
<i>Psorophora columblae</i>											
<i>Psorophora discolor</i>											
Annual Totals		68	247	78	3791	2448	9547	12102	355166	383447	
Annual PTF**		71.6	74.6	65.0	94.9	97.1	95.2	97.4	88.0	88.5	
(Annual totals of all females)****		95	331	120	3995	2522	10028	12423	403706	433220	

\*Only representative sample of 1979 specimens actually identified

\*\*Percent total females

\*\*\*includes *Culex quinquefasciatus*

\*\*\*\*includes species collected but not listed

MINOT AFB NORTH DAKOTA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>	2	547	375	547	29	74	73	180	131	1958	11.0
<i>dorsalis</i>											
<i>melanion</i>			6		3				12	21	<1
<i>solicitans</i>											
<i>taeniorhynchus</i>		18									
<i>triseriatus</i>						9	2			18	<1
<i>trivittatus</i>										11	<1
<i>vexans</i>	162	5396	5618	187	131	37	13	87	13	11644	65.2
<i>Anopheles</i>											
<i>cruciatus</i>											
<i>freeborni</i>						1		4	1	6	<1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>		1		1						2	<1
<i>Culex</i>											
<i>nigripalpus</i>											
<i>piptens**</i>		1		1	1	1		3		7	<1
<i>restuans</i>											
<i>salinarius</i>			1							1	<1
<i>tarsalis</i>	11	850	357	125	44	9	151	326	9	1882	10.5
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbata</i>											
<i>discolor</i>											
Annual Totals	175	6813	6357	861	208	131	239	600	166	15550	
Annual PTF*	96.7	95.3	90.9	62.1	84.2	31.3	81.3	63.4	70.6	87.1	
(Annual totals of all females)***	181	7150	6993	1387	247	419	294	947	237	17853	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed



RICKENBACKER AFB OHIO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanogen</i>		4								4	<1
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>		2							2	2	<1
<i>trivittatus</i>											
<i>vexans</i>		1414			180	268	314	3703	938	6817	66.3
<i>Anopheles</i>											
<i>crucians</i>								1		1	<1
<i>freeborni</i>						3	12	94	1	110	1.1
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>		144			13	176	68	780	70	1251	12.2
<i>pipiens**</i>		4								4	<1
<i>restuans</i>		9			1	34	148	934	56	1182	11.5
<i>salinarius</i>											
<i>tarsalis</i>		1								1	<1
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>					2	12	6	51	286	412	4.0
<i>columblae</i>		55								1	<1
<i>discolor</i>		1									
Annual Totals	0	1634			196	493	548	5563	1353	9787	
Annual PTF#	0	99.2			100.0	85.7	98.4	95.1	93.1	95.2	
(Annual totals of all females)***	2	1647			196	575	557	5851	1453	10281	

\*percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

## WRIGHT-PATTERSON AFB OHIO

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>					20	4	2		4	30	1.5
<i>dorsalis</i>											
<i>melanimon</i>					5			10		15	<1
<i>solicifans</i>					7		2			12	<1
<i>taeniorhynchus</i>	3										
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	312	11	64	35	574	110	86	159	35	1386	70.1
<i>Anopheles</i>											
<i>crucians</i>					2					2	<1
<i>freebornl</i>					2	2	2			6	<1
<i>quadrinaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>	5			7	71	49	45	5	5	187	9.5
<i>pipiens**</i>	18	3			1					22	1.1
<i>restuans</i>	3		1	5	13	7	29	12	5	75	3.8
<i>salinarius</i>							7	1	1	9	<1
<i>farsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>	56		1	1	13	4	2		24	101	5.1
<i>columblae</i>	1							1		2	<1
<i>discolor</i>											
Annual Totals	398	14	66	48	708	176	175	188	74	1847	
Annual PTF*	97.5	100.0	100.0	96.0	95.7	87.1	81.8	95.4	87.1	93.5	
(Annual totals of all females)***	408	14	66	50	740	202	214	197	85	1976	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

ALTUS AFB OKLAHOMA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>	1	1	1							3	<1
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>	81	254	35	3	37	18	11	485	4	928	23.6
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	4	159	11	10	26	1	3	78	82	374	9.5
<i>Anopheles</i>											
<i>crucians</i>			1							1	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>	1	3			1					5	<1
<i>Coquillettidia</i>											
<i>perturbans</i>	4									4	<1
<i>Culex</i>											
<i>nitripalpus</i>		1								1	<1
<i>pipiens**</i>	3	16	3	1		1	37			61	1.5
<i>restuans</i>											
<i>salinarius</i>		6	3				1			10	<1
<i>tarsalis</i>	379	490	250	6	12	2	385	6		1530	38.8
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>	8	94	1	11	2	2	1	10		129	3.3
<i>discolor</i>		6	1		3					10	<1
Annual Totals	481	1030	306	31	81	24	438	579	86	3056	
Annual PTF*	95.4	80.0	96.5	68.9	21.4	82.8	94.2	83.3	39.3	77.6	
(Annual totals of all females)***	504	1287	317	45	378	29	465	695	219	3939	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

TINKER AFB OKLAHOMA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis											
melanimon				22	11					33	3.9
solicitans							1	6		7	<1
taeniorhynchus											
triseriatus											
trivittatus											
vexans				14	11		169	52		246	28.7
Anopheles											
crucians											
freeborni											
quadrimaculatus											
Coquillettidia											
perturbans											
Culex											
nigripalpus				13				1		14	1.6
piptens**											
restuans							28	4		40	4.7
salinarius				8	6		31	38		90	10.5
tarsalis			1	14							
Culiseta											
melanura											
Psorophora											
columblae				61	45		2	14		122	14.2
discolor					1			1		2	<1
Annual Totals			1	132	74		231	116	0	554	
Annual PTF*			100.0	35.7	77.9		92.4	82.9	0	64.6	
(Annual totals of all females)***			1	370	95		250	140	1	857	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

VANCE AFB OKLAHOMA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanion</i>											
<i>solicitans</i>		9			3			6		18	3.5
<i>taeniorhynchus</i>						2	5	2		9	1.8
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>			1		9	7				17	3.3
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>							2			2	<1
<i>pipiens</i> **		1				1				2	<1
<i>restuans</i>						2	11	1		30	5.9
<i>salinarius</i>			16			16	32	32		81	15.9
<i>tarsalis</i>		1									
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>					18	6	5	1		30	5.9
<i>discolor</i>						3	1			4	<1
Annual Totals		11	17		30	37	56	42		193	
Annual PTF#		73.3	94.4		14.0	28.7	73.7	76.4		38.0	
(Annual totals of all females)***		15	18		215	129	76	55		508	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

KINGSLEY FIELD OREGON

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti											
Aedes dorsalis				11						11	1.2
Aedes melanlimon											
Aedes sollicitans											
Aedes taeniorhynchus											
Aedes triseriatus											
Aedes trivittatus											
Aedes vexans											
Anopheles crucians											
Anopheles freeborni				7						7	<1.0
Anopheles quadrimaculatus											
Coquillettidia perturbans											
Culex nigripalpus											
Culex pipiens**											
Culex restuans											
Culex salinarius				567						567	63.2
Culex tarsalis											
Culiseta melanura											
Psorophora columblae				12						12	1.3
Psorophora discolor											
Annual Totals				597						597	
Annual PTF*				66.6						66.6	
(Annual totals of all females)***				897						897	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

CHARLESTON AFB SOUTH CAROLINA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF**
<i>Aedes</i>									3	3	<1
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>							111	48	8	167	9.0
<i>solicitans</i>							30	11	1	42	2.3
<i>taeniorhynchus</i>								34	742	776	41.6
<i>triseriatus</i>											
<i>trivittatus</i>							144		42	186	10.0
<i>vexans</i>											
<i>Anopheles</i>											
<i>cruciatus</i>							49	12	4	65	3.5
<i>freeborni</i>							1	2	2	5	<1
<i>quadrinaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>							66	17	13	96	5.2
<i>Culex</i>											
<i>nigripalpus</i>							1	2		3	<1
<i>pipiens**</i>							6	6	41	53	2.8
<i>restuans</i>							38	29	4	71	3.8
<i>salinarius</i>							16	2		18	<1
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>							38	10	9	57	3.1
<i>columbica</i>											
<i>discolor</i>											
Annual Totals							500	173	869	1542	
Annual PTF*							95.4	92.0	75.4	82.7	
(Annual totals or all females)***							524	188	1152	1864	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

## MYRTLE BEACH AFB SOUTH CAROLINA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>				1	4	39	389	91	19	543	14.6
<i>taeniorhynchus</i>					11	2	67	31	68	179	4.8
<i>triseriatus</i>							1	6		7	<1
<i>trivittatus</i>					1	1				2	<1
<i>vexans</i>					2	16	213	289	26	546	14.7
<i>Anopheles crucians</i>											
<i>freeborni</i>				12	52	36	23	6	3	132	3.5
<i>quadrinaculatus</i>							2			2	<1
<i>Coquillettidia perturbans</i>				3			1		2	6	<1
<i>Culex nigripalpus</i>											
<i>pipiens**</i>				1	4	84	23	3	18	3	<1
<i>restuans</i>								176		306	8.2
<i>salinarius</i>				5	24	87	81	264	7	468	12.6
<i>tarsalis</i>								13	13	13	<1
<i>Culiseta melanura</i>											
<i>Psorophora columbiae</i>				9	209	259	142	26	75	720	19.4
<i>discolor</i>											
Annual Totals				31	307	524	942	892	231	2927	
Annual PTF*				47.7	86.7	50.9	90.8	89.5	97.5	78.7	
(Annual totals of all females)***				65	354	1030	1037	997	237	3720	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed



SHAW AFB SOUTH CAROLINA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>		1						1		2	<1
<i>solicitans</i>											
<i>teenlorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	4	4	2	25	31			2	6	74	25.7
<i>Anopheles crucians</i>											
<i>freeborni</i>		1	3	4	16					24	8.3
<i>quadrimaculatus</i>					3					3	1.0
<i>Coquillettidia perturbans</i>					7					7	2.4
<i>Culex nigripalpus</i>		2									
<i>pipiens</i> **	11	2		1	3				1	18	<1
<i>restuans</i>			1		9					10	6.3
<i>salinarius</i>		15	56	6	10				1	88	30.6
<i>tarsalis</i>	2									2	<1
<i>Culiseta melanura</i>											
<i>Psorophora columblae</i>	1				9					10	3.5
<i>discolor</i>											
Annual Totals	18	25	62	36	88			3	8	240	
Annual PTF*	100.0	100.0	75.6	80.0	86.3			100.0	61.5	83.3	
(Annual totals of all females)***	18	25	82	45	102			3	13	288	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

ARNOLD AFS TENNESSEE

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis											
melanimon											
solicitans											
taeniorhynchus											
triseriatus											
trivittatus											
vexans											
Anopheles											
crucians											
freeborni											
quadrimaculatus											
Coquillettidia											
perturbans											
Culex											
nigripalpus											
pipiens**											
restuans											
salinarius											
tarsalis											
Culiseta											
melanura											
Psorophora											
columbiae											
discolor										0	
Annual Totals	0									0	
Annual PTF*	0									0	
(Annual totals of all females)***	6									6	

\*Percent total females

\*\*includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

BERGSTROM AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>			1							1	<1
<i>dorsalis</i>											
<i>melanimon</i>										6	<1
<i>solicitans</i>	4	2					6			7	<1
<i>taeniorhynchus</i>	1										
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	4	6		3		4		7	24	48	2.8
<i>Anopheles</i>											
<i>crucians</i>				1			2			3	<1
<i>freeborni</i>											
<i>quadrinaculatus</i>							1			1	<1
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>	3		6	1						10	<1
<i>pipiens</i> **		9	7	8	1	5	3	6	44	83	4.8
<i>restuans</i>											
<i>salinarius</i>		2	2	3	1		16			24	1.4
<i>tarsalis</i>	4		8	6	10	10	20	10	24	92	5.3
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>	623	12	9	35	4	137	29	90	178	1117	65.3
<i>discolor</i>			1			20	63			84	4.9
<i>Annual Totals</i>	639	31	34	57	16	176	140	113	270	1476	
<i>Annual PTF*</i>	97.0	96.9	68.0	46.0	80.0	88.9	85.4	61.4	96.8	86.3	
<i>(Annual totals of all females)***</i>	659	32	50	124	20	198	164	184	279	1710	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

BROOKS AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes											
aegypti				2				3		5	<1
dorsalis											
melanimon											
sollicitans	39	77		41		2	24	232		415	6.5
taeniorhynchus		1		2	1			1		5	<1
triseriatus		3								3	<1
trivittatus											
vexans		11		4	3	5	6	27	1	57	<1
Anopheles											
crucians		9					4			13	<1
freeborni											
quadrimaculatus		7						1		8	<1
Coquillettidia											
perturbans											
Culex											
nigripalpus		2						1		3	<1
pipiens**		59		49	15	1	25	35	23	207	3.2
restuans		20		5	8		43	3		79	1.2
salinarius		15		52	102	36	224	53	7	489	7.6
tarsalis											
Culiseta											
melanura											
Psorophora											
columblae	11	250		199	1368	660	61	228	34	2811	43.9
discolor		6		198	221	12	18	11		466	7.3
Annual Totals	50	460		552	1718	716	405	595	65	4561	
Annual PTF#	100	63.5		50.9	88.6	97.5	43.3	71.3	69.1	71.3	
(Annual totals of all females)***	50	724		1085	1940	734	936	834	94	6397	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

CARSMELL AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanoc</i>											
<i>sollicitans</i>		18								18	1.5
<i>taeniorhynchus</i>		1								1	<1
<i>triseriatus</i>		3								3	<1
<i>trivittatus</i>		207					178	68		454	38.7
<i>vexans</i>	1										
<i>Anopheles</i>											
<i>crucians</i>		20				1				21	1.8
<i>freeborni</i>					1						
<i>quadrimaculatus</i>		1								2	<1
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>		1								1	<1
<i>pipiens**</i>	35	48				101	17	3		206	17.6
<i>restuans</i>											
<i>salinarius</i>		10					25	16		51	4.4
<i>tarsalis</i>		47					11	2		60	5.1
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>	10	111			21	2	13	1		158	13.5
<i>discolor</i>		35								35	3.0
Annual Totals	46	502	0		22	104	244	92		1010	
Annual PTF*	100.0	84.2	0		45.8	99.0	89.4	88.5		86.2	
(Annual totals of all females)***	46	596	0		48	105	273	104		1172	

\*Percent total females

\*\*includes *Culex quinquefasciatus*

\*\*\*includes species collected but not listed

DYESS AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti				5		1	3		2	11	<1
dorsalis											
melanimon	18	330	174	1240	774	222	189	3	385	3355	13.8
sollicitans							9			9	<1
taeniorhynchus											
triseriatus											
trivittatus											
vexans		14	81	45	22	20	77	130	9	398	1.6
Anopheles											
crucians											
freeborni				1		2				4	<1
quadrimaculatus											
Coquillettidia									1	1	<1
perturbans											
Culex											
nitripalpus	1	39		7	4	16	29	4		100	<1
pipiens**		2								3	<1
restuans		55	19	39	5	1	10			129	<1
salinarius		781	201	1542	257	248	553	67	207	3896	16.1
tarsalis	40										
Culiseta				3						3	<1
melanura											
Psorophora	37	113	34	108	60	65	141	8	99	665	2.7
columblae	1	206	15	269	83	49	25			648	2.6
discolor											
Annual Totals	97	1541	525	3259	1205	624	1036	212	703	9202	
Annual PTF*	28.9	48.2	75.4	41.1	44.9	47.7	37.1	18.9	17.7	38.3	
(Annual totals of all females)***	336	3196	696	7935	2682	1309	2796	1120	3980	24050	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

ELLINGTON AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>	1	292		151						444	6.6
<i>taeniorhynchus</i>	4	20		3						27	<1
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>		36		16						52	<1
<i>Anopheles crucians</i>	4	8	12	64						88	1.3
<i>freeborni</i>											
<i>quadrimaculatus</i>				2						2	<1
<i>Coquillettidia perturbans</i>											
<i>Culex nigripalpus</i>											
<i>pipiens</i> **				2						2	<1
<i>restuans</i>											
<i>salinarius</i>		26	2	29						57	<1
<i>tarsalis</i>											
<i>Culiseta melanura</i>											
<i>Psorophora columbiana</i>	365	918	104	4579						5966	88.8
<i>discolor</i>		4								4	<1
Annual Totals	374	1304	118	4846						6642	
Annual PTF*	95.4	97.4	100	99.5						98.8	
(Annual totals of all females)***	392	1339	118	4871						6720	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

GOODFELLOW AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes aegypti											
dorsalis											
melanimon											
solicitans	25	5				7				37	7.7
taeniorhynchus											
triseriatus	3									3	<1.0
trivittatus	3									3	<1.0
vexans	16	1								17	3.5
Anopheles crucians											
freeborni											
quadrinaculatus											
Coquillettidia perturbans											
Culex nigripalpus											
piplens**											
restuans											
salinarius											
tarsalis	46	27				79	1			153	31.9
Culiseta melanura											
Psorophora columbiae	32	20				4				56	11.7
discolor	4									4	<1.0
Annual Totals	129	53				90	1			273	
Annual PTF*	41.5	75.7				96.8	20.0			57.0	
(Annual totals of all females)***	311	70				93	5			479	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed



KELLY AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>	3			1	1	1				6	<1
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>	57	199	41	16						313	5.0
<i>taeniorhynchus</i>	6		1							7	<1.0
<i>triseriatus</i>	12									12	<1.0
<i>trivittatus</i>	22		1	2						25	<1.0
<i>vexans</i>	59	601	216	229	21	143	67		10	1346	21.3
<i>Anopheles</i>											
<i>crucians</i>		4	2			8				14	<1.0
<i>freeborni</i>											
<i>quadrimaculatus</i>				1						1	<1.0
<i>Coquillettidia</i>											
<i>perturbans</i>	19									19	<1.0
<i>Culex</i>											
<i>nitens</i>	1									1	<1.0
<i>pipiens</i> **	35	22	47	49	11	47	15			226	3.6
<i>restuans</i>	4	1								5	<1.0
<i>salinarius</i>	3	4	12	5	2	4	23		4	57	<1.0
<i>tarsalis</i>	36	47	45	4		86	19			237	3.8
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>	1074	1655	76	41	32	34	10			2922	46.2
<i>discolor</i>	12	91	19		1	4	6			133	2.1
Annual Totals	1343	2624	460	348	68	327	140		14	5324	
Annual PTF*	95.2	86.2	68.8	64.7	77.3	88.1	77.8		87.5	84.3	
(Annual totals of all females)***	1411	3045	669	538	88	571	180		16	6318	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

LACKLAND AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>	5	58	103	2		2	1	5	1	175	2.7
<i>taeniorhynchus</i>	1		1							4	<1
<i>triseriatus</i>							16		1	17	<1
<i>trivittatus</i>	4	4							2	8	<1
<i>trux</i>	4	4	4	2	7	2	5	16	112	196	15.2
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>	5		47	1	2		22	1	4	34	1.8
<i>quadrimaculatus</i>	7				7				2	6	<1
<i>Cochillettiella</i>											
<i>perfurata</i>											
<i>Culex</i>											
<i>nigripalpus</i>			1						1	2	<1
<i>pipiens</i> **	60	100	93	66	138	76	62	12	38	655	10.2
<i>restuans</i>							9			9	<1
<i>salinarius</i>	2	52	54	4		1	345	4	10	472	7.2
<i>tarsalis</i>	6	35	176	7	1	33	330	24	21	633	9.7
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>clumbiae</i>	139	793	471	10	80	247	92	14	16	1862	28.6
<i>discolor</i>	2	47	69		4	14	19			155	2.4
Annual Totals	228	1164	1842	121	254	375	993	137	210	5324	
Annual PTF*	95.4	75.3	84.9	79.1	93.7	76.2	80.9	94.5	77.8	81.7	
(Annual totals of all females)***	239	1545	2170	153	271	492	1228	145	270	6513	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

AD-A112 831

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TX  
MOSQUITO VECTORS COLLECTED AT CONUS USAF INSTALLATIONS AND MOSQ--ETC(U)  
DEC 81 J T LANG, D D PINKOVSKY, R J MCKENNA  
SAM-TR-81-36

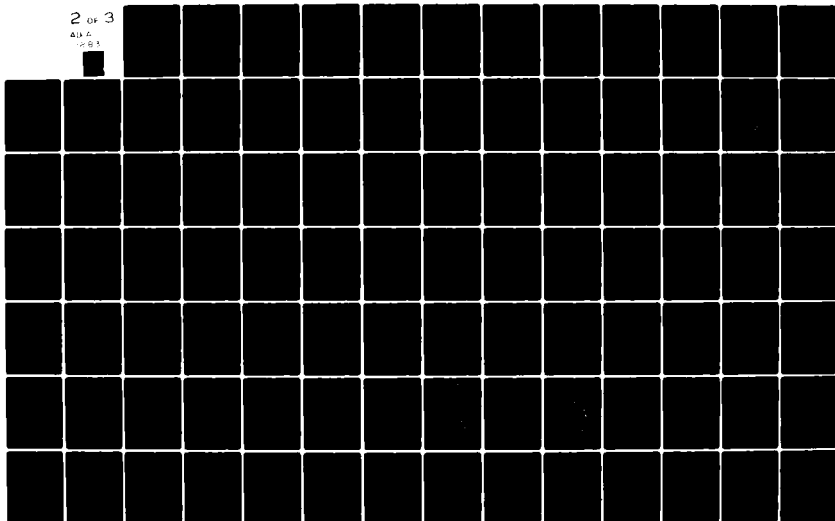
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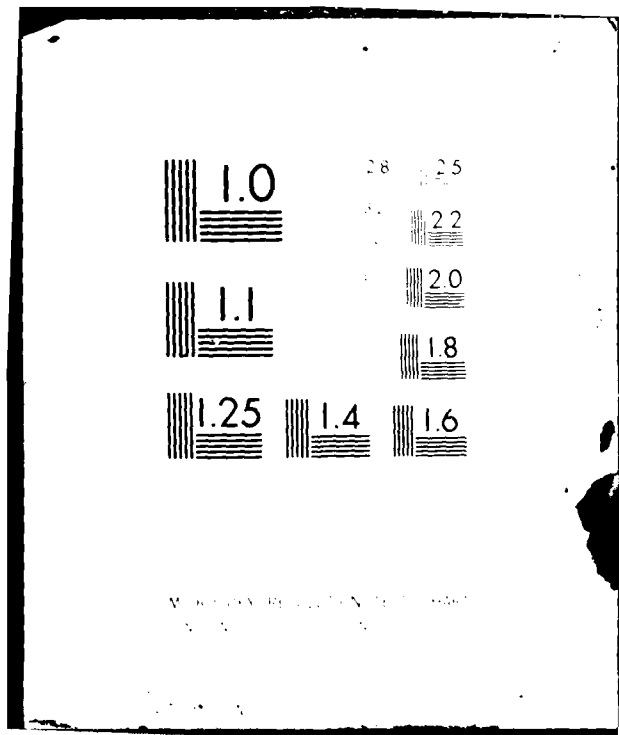
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LAREDO AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>	6	45	4							55	3.0
<i>solicitans</i>		2								2	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>	8									8	<1
<i>trivittatus</i>	32	32								64	3.4
<i>vexans</i>											
<i>Anopheles crucians</i>		1								1	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia perturbans</i>											
<i>Culex nigripalpus</i>	33	14								47	2.5
<i>piptiens</i> **											
<i>restuans</i>	3									3	<1
<i>salinarius</i>	122	55								177	9.5
<i>tarsalis</i>											
<i>Culiseta melanura</i>											
<i>Psorophora columblae</i>	171	710	13							894	48.1
<i>discolor</i>	16	24	5							45	2.4
Annual Totals	391	883	22							1296	
Annual PTF*	62.5	73.5	73.3							69.8	
(Annual totals of all females)***	626	1202	30							1858	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

LAUGHLIN AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicifans</i>	4	1	2		2	2				11	<1
<i>taeniorhynchus</i>											
<i>triseriatus</i>	5									5	<1
<i>trivittatus</i>	12									12	<1
<i>vexans</i>	25	2	1		29	7		24	15	103	2.9
<i>Anopheles</i>											
<i>cruciatus</i>								1		1	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>	1		4							5	<1
<i>pipiens**</i>	6		3		2	30		8	1	50	1.4
<i>restuans</i>											
<i>salinarius</i>					4					4	<1
<i>farsalis</i>	25	26	38	9	444	176		30	103	851	23.8
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbicae</i>	84	15	2		182	399		6	30	718	20.1
<i>discolor</i>	22	33	14	2	71	210		5		357	10.0
Annual Totals	184	77	64	11	734	824		74	149	2117	
Annual PTF*	64.8	70.0	87.7	64.7	48.3	67.0		49.0	76.8	59.1	
(Annual totals of all females)***	284	110	73	17	1521	1230		151	194	3580	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

RANDOLPH AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanoxon</i>		6	1	1				10	7	25	2.0
<i>sollicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>		5		1				18	22	46	3.8
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>					2				4	6	<1
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>									1	1	<1
<i>Culex</i>											
<i>nigripalpus</i>		1								1	<1
<i>pipiens</i> **		10	16	230	22	3	6		7	294	24.0
<i>restuans</i>											
<i>salinarius</i>		4					8			12	<1
<i>tarsalis</i>				3	2	38	21		10	74	6.1
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>		104	1	1	101	28	14	30	131	410	33.5
<i>discolor</i>		33		5	39	9	6	1	10	103	8.4
Annual Totals		163	18	241	166	78	55	59	192	972	
Annual PTF*		75.1	94.7	92.3	79.0	57.4	58.5	84.3	88.9	79.5	
(Annual totals of all females)***		217	19	261	210	136	94	70	216	1223	

\*Percent for males

\*\*Includes *C. quinquefasciatus*

\*\*\*Includes : collected but not listed

REESE AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF#
Aedes											
aegypti			7		12			34	3	56	<1
dorsalis											
melanimon											
solicifans	91		343	171	327	128	716	452	1	2229	5.9
taeniorhynchus								121		122	<1
triseriatus											
trivittatus	1									1	<1
vexans	40		2223	801	2827	513	1546	1134	2716	11800	31.4
Anopheles											
cruciatus											
freeborni					1		11			12	<1
quadrimaculatus											
Coquillettidia											
perturbans	1									1	<1
Culex											
nigripalpus											
pipiens**			3				8	55	38	104	<1
restuans			1							1	<1
salinarius							7	57	3	67	<1
tarsalis	78		415	218	1221	2328	1850	1768	1628	9506	25.3
Culiseta											
melanura							7			7	<1
Psorophora											
columbiae	1		1	8	4	4	15	57	13	103	<1
discolor			1		37			52		90	<1
Annual Totals	212		2994	1198	4429	2973	4161	3731	4402	24099	
Annual PTF*	84.1		95.8	95.3	77.8	61.7	42.3	73.0	59.2	64.2	
(Annual totals of all females)***	252		3126	1257	5693	4820	9829	5111	7441	37529	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed



## SHEPPARD AFB TEXAS

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>	362	147	240		21	48	48	435	112	1413	36.2
<i>taeniorhynchus</i>	15									15	<1
<i>triseriatus</i>	1									1	<1
<i>trivittatus</i>											
<i>vexans</i>	3	2	1			9	7	43	101	166	4.2
<i>Anopheles crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>						3	1			4	<1
<i>Coquillettidia perturbans</i>	5					1				6	<1
<i>Culex nigripalpus</i>											
<i>pipiens</i> **		2				8	4	17	11	42	1.1
<i>restuans</i>											
<i>salinarius</i>			2		3				1	6	<1
<i>tarsalis</i>	44	293	49		17	170	33	49	132	787	20.1
<i>Culiseta melanura</i>											
<i>Psorophora columbæ</i>	30	111	34		3	455	51	56	113	853	21.8
<i>discolor</i>			1		1	26				28	<1
Annual Totals	460	555	327		45	720	144	600	470	3321	
Annual PTF*	96.8	82.6	98.2		93.8	82.9	88.9	81.6	76.8	85.0	
(Annual totals of all females)***	475	672	333		48	869	162	735	612	3906	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

**YEAR**

\*Percent total females  
 \*\*Includes Culex quinquefasciatus  
 \*\*\*Includes species collected but not listed

## HILL AFB UTAH

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti		1	39	4	7	281	621			955	37.5
dorsalis											
melanimon											
solicifans											
taeniorhynchus											
triseriatus											
trivittatus		3	1				8	2		14	<1
vexans											
Anopheles											
crucians											
freeborni					1						
quadrimaculatus		1								2	<1
Coquillettidia											
perturbans											
Culex											
nigripalpus											
pipiens**	5	4	29		2	14	48			102	4.0
restuans		43								43	1.7
salinarius											
tarsalis	100	111	107	2	146	329	361	20		1176	46.2
Culiseta											
melanura											
Psorophora											
columbiae											
discolor											
Annual Totals	105	163	176	6	156	624	1038	22		2290	
Annual PTF*	89.0	84.8	71.3	85.7	79.1	97.7	98.7	23.7		90.0	
(Annual totals of all females)***	118	191	247	7	196	639	1052	93		2543	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*includes species collected but not listed

LANGLEY AFB VIRGINIA

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>sollicitans</i>	62		21		713	1808	7092	2510	733	12939	23.4
<i>taeniorhynchus</i>	36		1		95	489	5613	179	30	6443	11.6
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>	2		25		343	187	781	552	391	2281	4.1
<i>Anopheles</i>											
<i>crucians</i>	116		16		63	82	365	9470	798	10910	19.7
<i>freeborni</i>											
<i>quadrimaculatus</i>			6		37				27	70	<1
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>negripalpus</i>											
<i>pipiens**</i>			5		7	194	1537	3385	843	5971	10.8
<i>restuans</i>	3				12					16	<1
<i>salinarius</i>	49		2		456	208	1212	8104	4338	14569	26.3
<i>tarsalis</i>					6	69	261	46	21	403	<1
<i>Culiseta</i>											
<i>melanura</i>						1				1	<1
<i>Psorophora</i>											
<i>columblae</i>	67		9		74	25	26	415	9	625	1.1
<i>discolor</i>											
Annual Totals	335		85		1806	3063	16887	24662	7390	54228	
Annual PTF*	99.7		96.6		97.8	98.6	98.9	97.5	97.7	98.0	
(Annual totals of all females)***	336		88		1847	3106	17072	25300	7561	55310	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

FAIRCHILD AFB WASHINGTON

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>											
<i>melanimon</i>											
<i>solicitans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>										2	1.2
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>					14			1		15	9.0
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>										3	1.8
<i>nigripalpus</i>			3								
<i>pipiens**</i>											
<i>restuans</i>									2		
<i>salinarius</i>				54	4	5		27		93	56.0
<i>tarsalis</i>			1								
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columbiae</i>											
<i>discolor</i>			4	54	18	7		28	2	113	
Annual Totals			100.0	84.4	81.8	46.7		47.5	100	68.1	
Annual PTF*											
(Annual totals of all females)***			4	64	22	15		59	2	166	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

MCCHORD AFB WASHINGTON

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
Aedes											
aegypti											
dorsalis											
melanimon											
sollicitans											
taeniorhynchus											
triseriatus											
trivittatus	2									2	20.0
vexans											
Anopheles											
crucians											
freeborni											
quadrimaculatus											
Coquillettidia						2	2			4	40.0
perturbans											
Culex											
nigripalpus											
pipiens**											
restuans											
salinarius						2				2	20.0
tarsalis											
Culiseta											
melanura											
Psorophora											
columbiæ											
discolor											
Annual Totals	2					4	2			8	
Annual PTF*	66.6					80.0	100			80.0	
(Annual totals of all females)***	3					5	2			10	

\*Percent total females

\*\*Includes Culex quinquefasciatus

\*\*\*Includes species collected but not listed

FRANCIS E. WARREN AFB WYOMING

YEAR

VECTOR SPECIES	71	72	73	74	75	76	77	78	79	Species Totals	Species PTF*
<i>Aedes</i>											
<i>aegypti</i>											
<i>dorsalis</i>	15									15	93.7
<i>melanimon</i>											
<i>solicifans</i>											
<i>taeniorhynchus</i>											
<i>triseriatus</i>											
<i>trivittatus</i>											
<i>vexans</i>											
<i>Anopheles</i>											
<i>crucians</i>											
<i>freeborni</i>											
<i>quadrimaculatus</i>											
<i>Coquillettidia</i>											
<i>perturbans</i>											
<i>Culex</i>											
<i>nigripalpus</i>											
<i>pipiens**</i>	1									1	6.3
<i>restuans</i>											
<i>salinarius</i>											
<i>tarsalis</i>											
<i>Culiseta</i>											
<i>melanura</i>											
<i>Psorophora</i>											
<i>columblae</i>											
<i>discolor</i>											
Annual Totals	16	0								16	
Annual PTF*	100	0								100	
(Annual totals of all females)***	16	0								16	

\*Percent total females

\*\*Includes *Culex quinquefasciatus*

\*\*\*Includes species collected but not listed

#### IV. OCCURRENCE OF MOSQUITO-BORNE HUMAN DISEASE

Mosquito-borne encephalitides are difficult to identify and are not reportable to the Center for Disease Control, so State records of these diseases vary greatly in detail. In the tables in this section, disease cases introduced from outside the United States are not listed.

In some States, mosquito-borne disease did not occur every year that records were kept. If known, counties where cases were reported are listed in the tables. Maps showing county divisions are provided only for states which maintained individual county records of disease incidence. All encephalitis and aseptic meningitis cases are listed for States that did not identify specific etiologic agents; the first example of this is the table for Arkansas.

Following is a key to the abbreviations used in the case tables of mosquito-borne human diseases.

- CE = California (La Crosse) encephalitis
- EEE = eastern equine encephalitis
- SLE = St. Louis encephalitis
- VEE = Venezuelan equine encephalitis
- WEE = western equine encephalitis
- UNK = Viral encephalitis caused by unknown etiologic agent
- Unspec. County = records not available for specific counties.



**State:** Alabama

## Mosquito-to-borne Human Disease Cases

	Year											
COUNTY	70*	71*	72*	73*	74	75	76	77	78	79	80*	TOTAL
Unspec. County					14 SLE	58 SLE	69 SLE	1 SLE	8 SLE	1 SLE		151 SLE

\*State epidemiologist had no records available at time of contact.



Figure 2. Arkansas--county map.

State: Arkansas

Mosquito-borne Human Disease Cases<sup>a</sup>

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Arkansas	1			1		1						3
Ashley								1				1
Benton				1	1							2
Bradley						1						1
Chicot	1											1
Clark		1						1				2
Clay			1			1	1					3
Craighead				1	2	1	2	1				7
Crawford									2			2
Crittenden		1				6	1	1				9
Desha							1	1				2
Faulkner								1				1
Garland										1		1
Grant								2	1			3
Greene						1						1

<sup>a</sup>All cases shown are viral encephalitides, specific etiologic agents are unknown; not all are mosquito-borne.

\*State epidemiologist had no records available at time of contact.

State: Arkansas  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Howard				1								1
Independence			1									1
Jefferson									1	1		2
Lafayette					1		1					2
Lee					1	1	1	1				4
Little River									1			1
Lonoke		1		1								2
Madison									1			1
Miller							1	1				2
Mississippi					2	6	5					13
Monroe							1					1
Nevada								1				1
Newton			1									1
Quachita						3			1	1		5
Phillips	1				1	1	1					4
Polk					1				1			2

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Prairie						1						1
Pulaski	7	6	1	2	2	10	1	1	4	1		35
Randolph					1							1
St. Francis					1	1						2
Saline					1							1
Scott									1			1
Sebastian			1			1	3		2			7
Sevier							2					2
Union			1				1		1			3
Washington				2								2
White					2	1		1				4
TOTAL	10	9	6	9	16	36 <sup>b</sup>	22 <sup>c</sup>	13	16 <sup>d</sup>	4 <sup>e</sup>		141

\*State epidemiologist had no records available at time of contact.

b 1 CE, 18 SLE, 17 unknown etiology

c 6 SLE, 16 unknown etiology

d 1 CE, 15 unknown etiology

e 1 CE, 3 unknown etiology

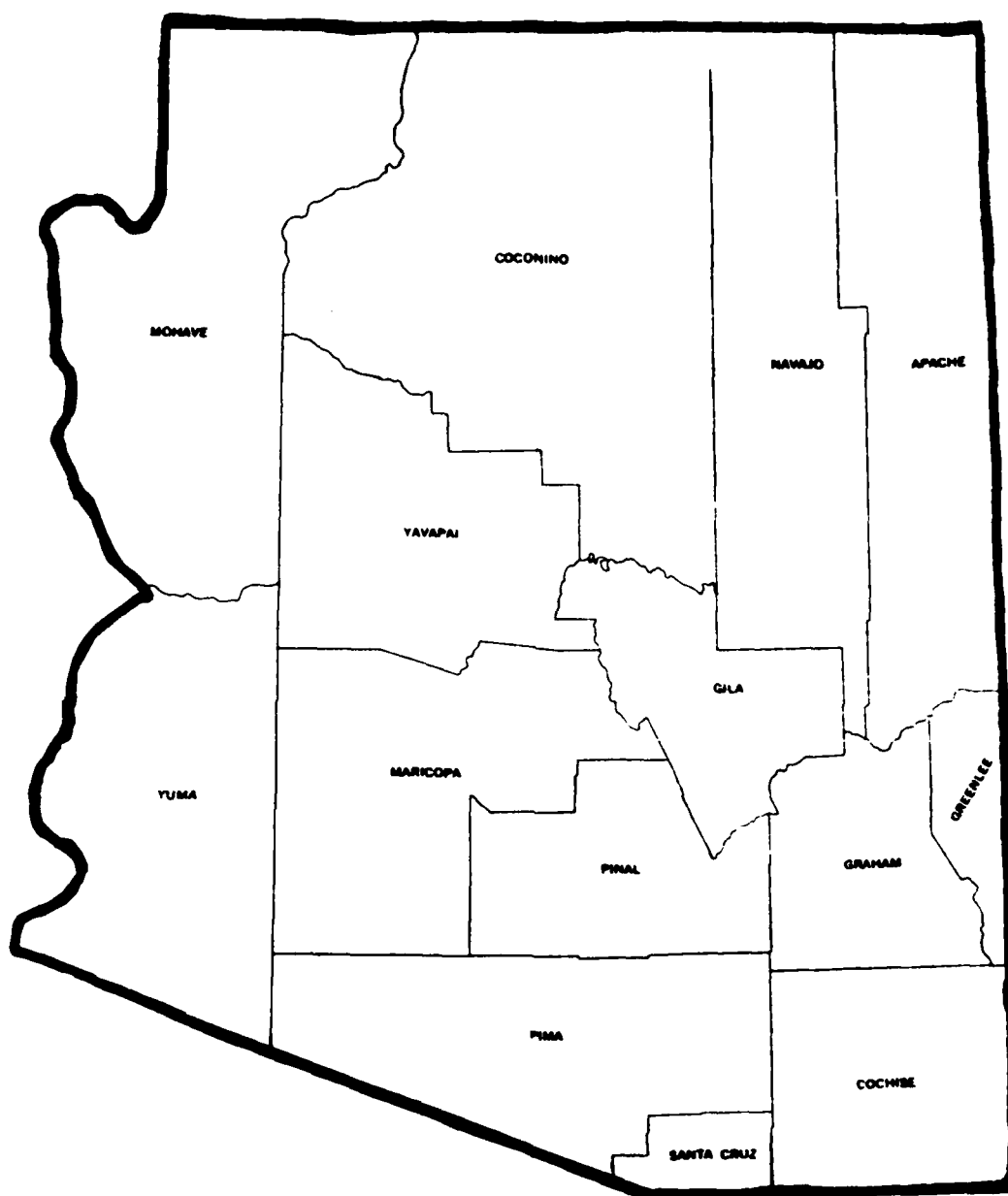


Figure 3. Arizona--county map.

State: Arizona

Mosquito-borne Human Disease Cases

COUNTY	Year										TOTAL
	70*	71*	72*	73*	74*	75	76	77	78	79	80*
Graham									1 SLE		
Maricopa						4 SLE	1 SLE		1 SLE	1 SLE	
Pinal							1 SLE		1 SLE		
TOTAL						4 SLE	2 SLE		3 SLE	1 SLE	

\*State epidemiologist had no records available at time of contact.



Figure 4. California--county map.



State: California

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Fresno			3 WEE									3 WEE
Sacramento										1 WEE		1 WEE
San Diego									1 SLE		1 SLE	2 SLE
Sutter					3 Mal <sup>b</sup>							3 Malaria
Unspec. County	2 SLE	2 SLE 3 WEE	5 SLE	5 SLE	1 SLE <sup>c</sup>	2 SLE <sup>c</sup>	3 SLE	1 SLE			1 Mal <sup>b</sup>	21 SLE 3 WEE 1 Malaria
TOTAL	2 SLE	2 SLE 3 WEE	5 SLE 3 WEE	5 SLE	1 SLE 3 Mal	2 SLE	3 SLE	1 SLE	1 SLE	1 WEE	1 SLE 1 Mal	23 SLE 7 WEE 4 Malaria

<sup>a</sup> Through October 1980

<sup>b</sup> Malaria locally acquired

<sup>c</sup> Acquired out-of-state

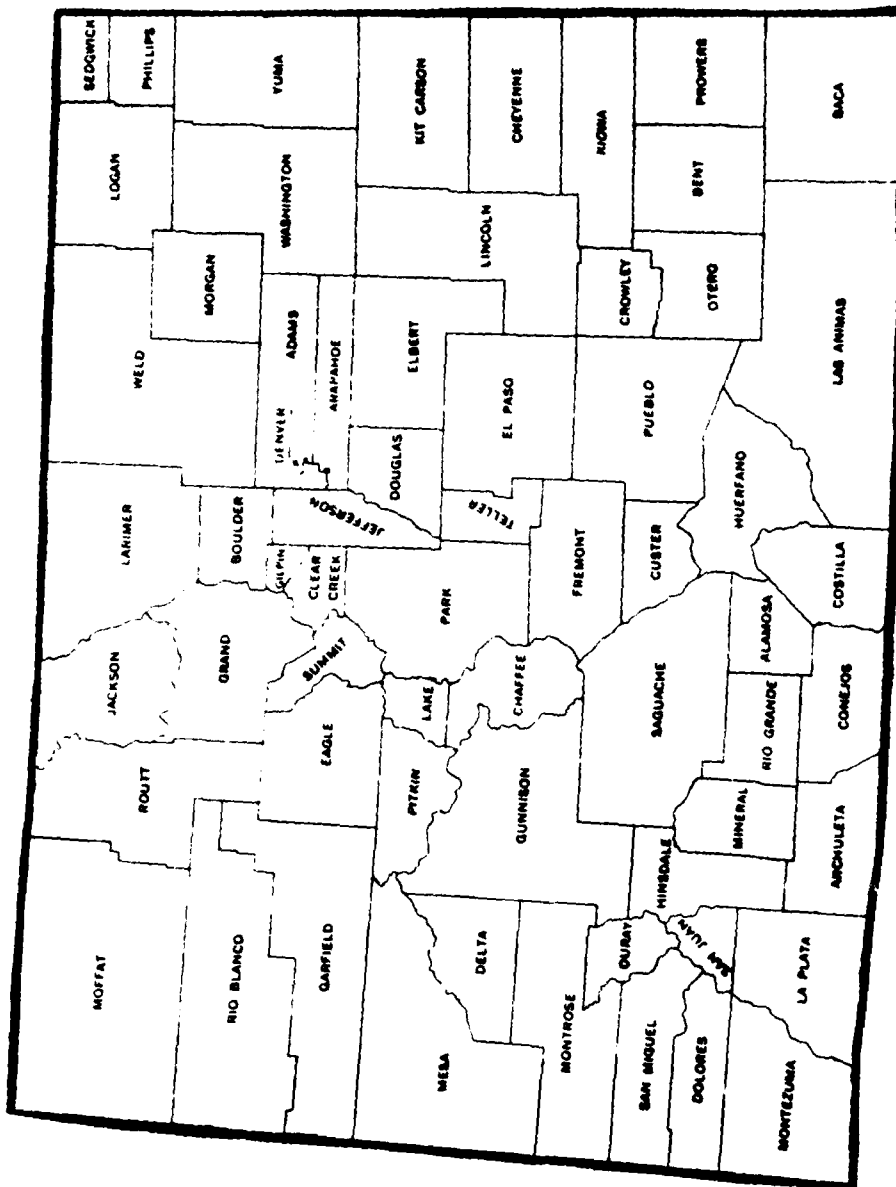


Figure 5. Colorado--county map.

State: Colorado

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Adams	1 SLE					3 WEE						1 SLE 3 WEE
Boulder						3 WEE		1 WEE				4 WEE
Cheyenne			1 WEE			1 WEE						2 WEE
Denver		1 WEE						1 WEE				2 WEE
Elbert						1 WEE						1 WEE
El Paso						1 WEE						1 WEE
Garfield								1 WEE				1 WEE
Jefferson						1 WEE						1 WEE
Larimer						1 SLE		4 WEE				1 SLE 4 WEE
Logan						1 WEE	1 SLE					1 SLE 1 WEE
Mesa		1 SLE 1 WEE	1 SLE									2 SLE 1 WEE
Moffat										1 WEE		1 WEE
Morgan						2 WEE						2 WEE

\*State epidemiologist had no records available at time of contact.

State: Colorado  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Otero						2 WEE						2 WEE
Pueblo						1 WEE 2 SLE	1 WEE					2 SLE 2 WEE
Prowers		2 SLE				1 WEE						2 SLE 1 WEE
Weld			1 SLE			1 WEE		3 WEE				1 SLE 4 WEE
Yuma								1 WEE				1 WEE
TOTAL	1 SLE	3 SLE 2 WEE	2 SLE 1 WEE			3 SLE 18 WEE	1 SLE 1 WEE	11 WEE		1 WEE		10 SLE 34 WEE

\*State epidemiologist had no records available at time of contact.

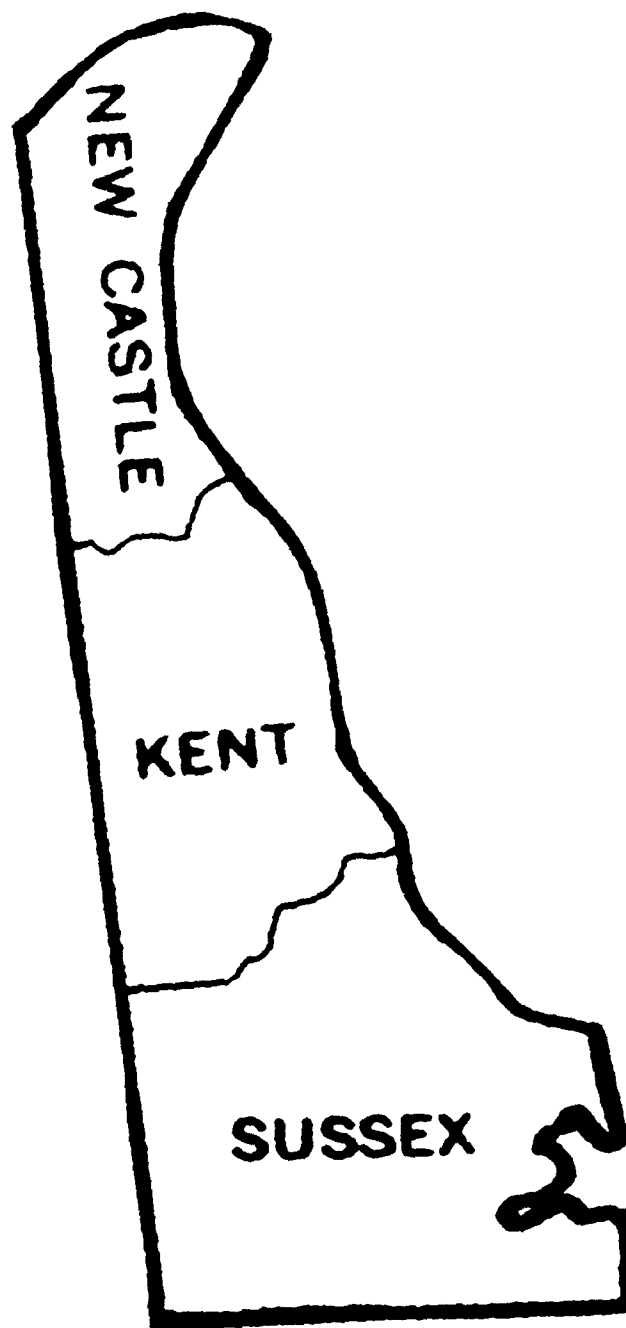


Figure 6. Delaware--county map.

State: Delaware

Mosquito-borne Human Disease Cases

COUNTY	Year										TOTAL
	70	71	72	73	74	75	76	77	78	79	80*
Kent		1 EEE									
New Castle						1 EEE					
Sussex										1 EEE	
TOTAL		1 EEE				1 EEE				1 EEE	

\*State epidemiologist had no records available at time of contact.

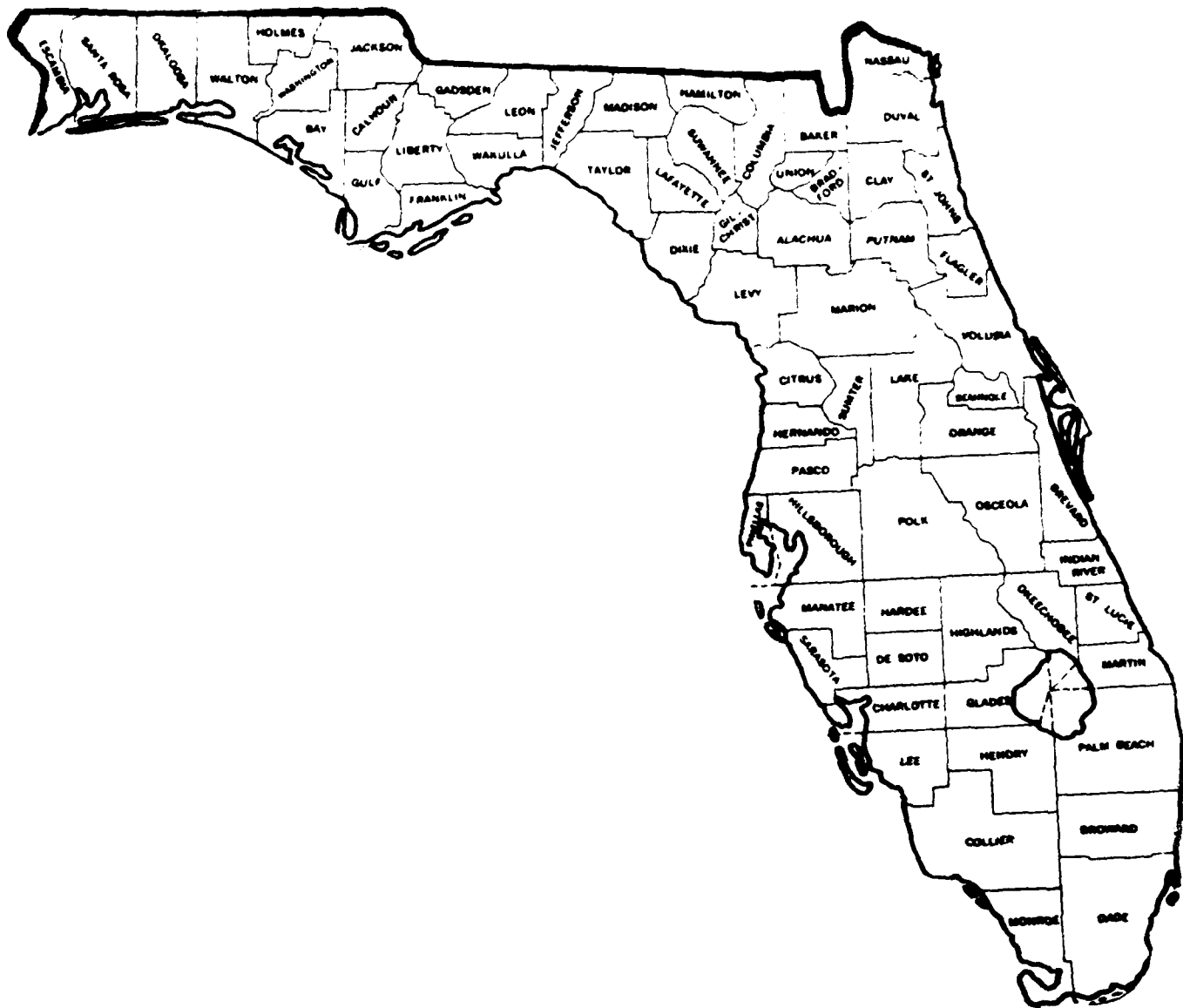


Figure 7. Florida--county map.

State: Florida

Mosquito-borne Human Disease Cases

Year

COUNTY	70*	71*	72*	73*	74*	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Alachua									1 EEE			1 EEE
Brevard								6 SLE				6 SLE
Collier									1 EEE	1 SLE		1 EEE 1 SLE
Dade							1 <sup>b</sup>		1 EEE			1 EEE 1 UNK
Dixie							1 EEE					1 EEE
Escambia											1 EEE	1 EEE
Highlands								1 SLE				1 SLE
Hillsborough								4 SLE		1 SLE		5 SLE
Holmes											1 EEE	1 EEE
Indian River								1 SLE				1 SLE
Lake								2 SLE				2 SLE
Lee								4 SLE		1 SLE		5 SLE
Manatee								4 SLE			1 EEE	1 EEE 4 SLE
Martin								1 SLE				1 SLE



COUNTY	70*	71*	72*	73*	74*	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Okaloosa											2 SLE	2 SLE
Orange								11 SLE				11 SLE
Osceola								2 SLE				2 SLE
Palm Beach								5 SLE		5 SLE		10 SLE
Pasco								1 SLE	1 EEE			1 EEE 1 SLE
Pinellas								11 SLE				11 SLE
Polk								17 SLE			1 EEE	1 EEE 17 SLE
St. Lucie											1 EEE	1 EEE
Sarasota								4 SLE				4 SLE
Seminole								2 SLE				2 SLE
Taylor						1 EEE						1 EEE
Volusia						1 EEE		2 SLE	1 EEE	1 EEE		3 EEE 2 SLE
TOTAL						2 EEE	1 EEE 1 UNK	78 SLE	5 EEE	1 EEE 8 SLE	5 EEE 2 SLE	14 EEE 88 SLE 1 UNK

\*State epidemiologist had no records available at time of contact.

<sup>a</sup> Through September 1980

<sup>b</sup> Unidentified arbovirus



Figure 8. Georgia--county map.

State: Georgia

Mosquito-borne Human Disease Cases<sup>a</sup>

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>b</sup>	TOTAL
Bibb										1 CE		1 CE
De Kalb											1 SLE <sup>c</sup>	1 SLE
Pierce											1 EEE	1 EEE
Richmond									2 SLE			2 SLE
Ware											1 EEE <sup>c</sup>	1 EEE
Unspec. County						2 SLE	1 SLE					3 SLE
TOTAL						2 SLE	1 SLE		2 SLE	1 CE	2 EEE 1 SLE	2 EEE 1 CE 6 SLE

<sup>a</sup> California encephalitis and Keystone viruses are widespread in south Georgia. A survey several years ago showed 19% of the sampled population had antibodies to one of these two viruses.

<sup>b</sup> Through October 1980

<sup>c</sup> Suspected cases, not confirmed

State: Idaho

Mosquito-borne Human Disease Cases

No cases reported 1966-1980



State: Illinois

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Adams							1 SLE					1 SLE
Alexander						1 SLE						1 SLE
Bond						2 SLE						2 SLE
Bureau										1 CE		1 CE
Calhoun						1 SLE						1 SLE
Carroll									2 CE	1 CE		3 CE
Champaign						1 CE 16 SLE						1 CE 16 SLE
Christian						16 SLE						16 SLE
Clark						3 SLE						3 SLE
Clay						5 SLE						5 SLE
Clinton						6 SLE						6 SLE
Coles					4 SLE	4 SLE						8 SLE
Cook		1 SLE				3 CE 290 SLE	3 SLE	1 SLE			1 SLE	3 CE 296 SLE
Cumberland						4 SLE						4 SLE

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
De Kalb						4 SLE						4 SLE
De Witt						1 SLE						1 SLE
Du Page					1 SLE	14 SLE		1 SLE				16 SLE
Edwards						1 SLE	1 CE 1 SLE					1 CE 2 SLE
Effingham						7 SLE						7 SLE
Fayette						1 SLE						1 SLE
Ford						3 SLE						3 SLE
Franklin					1 SLE							1 SLE
Gallatin						2 SLE	1 SLE					3 SLE
Greene						1 SLE						1 SLE
Grundy							2 SLE					2 SLE
Hamilton						4 SLE						4 SLE
Hancock						1 SLE						1 SLE
Henry						1 SLE						1 SLE
Jackson						2 SLE		2 SLE				4 SLE

<sup>a</sup>As of 16 October 1980.

State: Illinois  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Jasper						2 SLE						2 SLE
Jefferson						3 SLE						3 SLE
Jersey						1 SLE						1 SLE
Jo Daviess								1 CE				1 CE
Kane						3 SLE						3 SLE
Kankakee						5 SLE						5 SLE
Knox						2 SLE						2 SLE
Lake						1 SLE						1 SLE
La Salle						5 SLE		1 CE 1 SLE	1 CE			2 CE 6 SLE
Lawrence						2 SLE	1 SLE		1 CE	1 CE		2 CE 3 SLE
Lee								2 CE				2 CE
Livingston						2 CE 2 SLE	1 SLE					2 CE 3 SLE
Logan						1 SLE						1 SLE
McDonough						1 SLE						1 SLE



COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
McHenry						1 SLE						1 SLE
McLean						7 SLE						7 SLE
Macon						14 SLE		1 SLE				15 SLE
Macoupin						4 SLE		1 SLE				5 SLE
Madison						2 CE 14 SLE	1 SLE	1 SLE			1 SLE	2 CE 17 SLE
Marion						5 SLE						5 SLE
Marshall						1 SLE		1 CE				1 CE 1 SLE
Mason						1 CE 1 SLE						1 CE 1 SLE
Massac						1 SLE						1 SLE
Menard						1 SLE						1 SLE
Montgomery						3 SLE						3 SLE
Ogle						1 CE						1 CE
Peoria						9 CE 4 SLE	6 CE 1 SLE	7 CE	10 CE	5 CE	9 CE	46 CE 5 SLE

<sup>a</sup>As of 16 October 1980

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Perry							1 SLE					1 SLE
Platt						1 SLE						1 SLE
Pike						1 SLE						1 SLE
Putnam									1 CE			1 CE
Randolph						5 SLE						5 SLE
Richland						10 SLE		1 SLE				11 SLE
Rock Island						1 CE 4 SLE					1 SLE	1 CE 5 SLE
St. Clair						21 SLE		1 SLE				22 SLE
Saline						5 SLE		1 SLE				6 SLE
Sangamon						7 SLE	1 CE 1 SLE	1 SLE				1 CE 9 SLE
Schuyler						1 CE						1 CE
Shelby						5 SLE						5 SLE
Stephenson							1 SLE					1 SLE
Tazewell						1 CE 4 SLE		1 CE		2 CE	1 CE	5 CE 4 SLE

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Union						1 SLE						1 SLE
Vermillion						6 SLE						6 SLE
Wabash						1 SLE			1 CE			1 CE 1 SLE
Wayne						5 SLE	1 SLE					6 SLE
White						7 SLE	2 SLE					9 SLE
Whiteside						1 CE 2 SLE						1 CE 2 SLE
Will						18 SLE				1 CE		1 CE 18 SLE
Williamson						2 SLE	1 SLE					3 SLE
Woodford						2 SLE		2 CE				2 CE 2 SLE
TOTAL		1 SLE			6 SLE	23 CE 581 SLE	8 CE 19 SLE	15 CE 12 SLE	16 CE	11 CE	10 CE 3 SLE	83 CE 622 SLE

<sup>a</sup> As of 16 October 1980

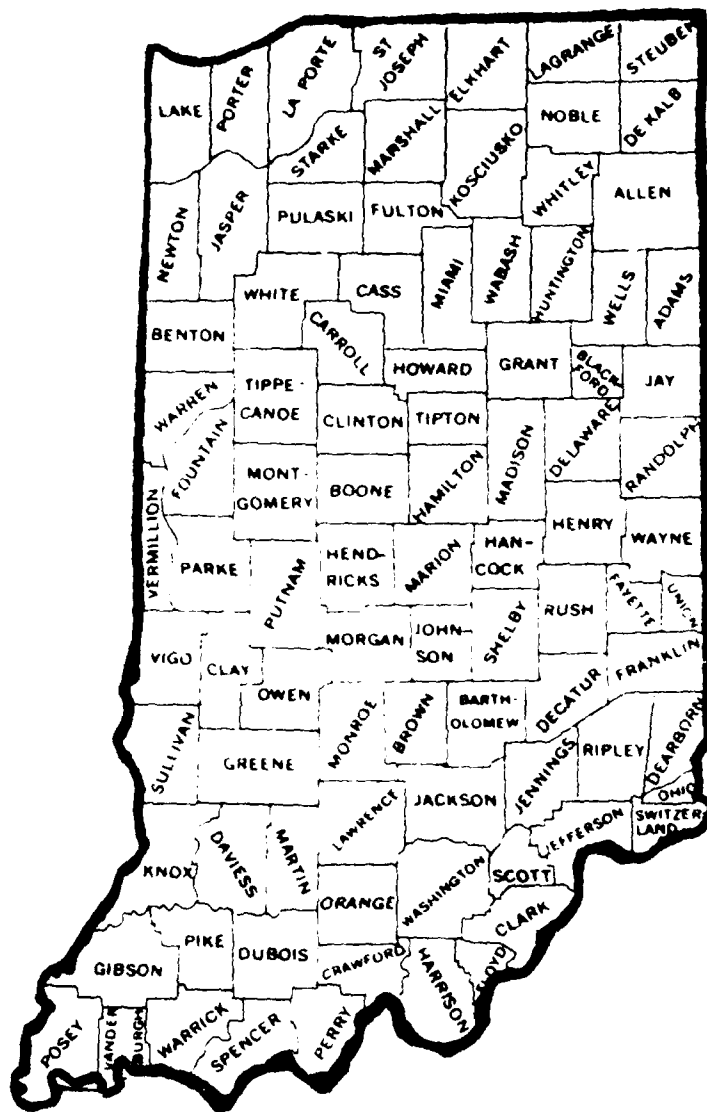


Figure 10. Indiana--county map.

State: Indiana

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80	TOTAL
Adams						7 SLE						7 SLE
Allen	1 SLE					27 SLE 8 CE	1 SLE 1 CE	1 SLE 2 CE		1 CE	3 CE	15 CE 30 SLE
Bartholomew						41 SLE		1 SLE		1 CE		1 CE 42 SLE
Blackford						3 SLE						3 SLE
Carroll						3 SLE						3 SLE
Cass						5 SLE						5 SLE
Clay						4 SLE						4 SLE
Clinton						2 SLE						2 SLE
Davless							1 SLE					1 SLE
Decatur						4 SLE		1 CE			1 CE	2 CE 4 SLE
De Kalb								1 CE				1 CE
Delaware				1 SLE		8 SLE	1 SLE					10 SLE
Dubois						9 SLE	1 SLE					10 SLE
Elkhart						5 SLE						5 SLE

State: Indiana  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80	TOTAL
Fayette										1 CE		1 CE
Floyd										1 CE		1 CE
Gibson						4 SLE						4 SLE
Grant						6 SLE						6 SLE
Hamilton							1 SLE					1 SLE
Hancock						2 SLE						2 SLE
Hendricks						1 SLE						1 SLE
Henry						1 SLE	1 SLE			1 SLE		3 SLE
Howard						2 SLE	1 SLE					3 SLE
Huntington						3 SLE		1 SLE				4 SLE
Jackson						8 SLE		2 SLE	1 SLE			11 SLE
Jasper						1 SLE						1 SLE
Jay						3 SLE			1 CE			1 CE 3 SLE
Jefferson						1 SLE						1 SLE
Johnson		1 SLE				4 SLE	1 SLE		1 SLE			7 SLE
Knox						5 SLE		2 SLE			7 SLE	14 SLE

COUNTY	70	71	72	73	74	75	76	77	78	79	80	TOTAL
Kosciusko						2 SLE						2 SLE
Lagrange						1 SLE						1 SLE
Lake						17 SLE	1 SLE				1 CE	1 CE 18 SLE
La Porte						2 SLE						2 SLE
Madison						3 SLE	2 SLE					5 SLE
Marion		14 SLE				52 SLE	1 SLE		1 CE			1 CE 67 SLE
Marshall						5 SLE						5 SLE
Martin						2 SLE						2 SLE
Miami						3 SLE						3 SLE
Monroe							1 CE					1 CE
Montgomery						1 SLE				1 SLE		2 SLE
Morgan						2 SLE					1 CE	1 CE 2 SLE
Newton						1 SLE						1 SLE
Noble						1 SLE						1 SLE

State: Indiana  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80	TOTAL
Orange						1 SLE						1 SLE
Perry						1 SLE						1 SLE
Pike						1 SLE						1 SLE
Porter						1 SLE						1 SLE
Posey					1 SLE	1 SLE						2 SLE
Pulaski						1 SLE						1 SLE
Putnam						2 SLE						2 SLE
Randolph						1 SLE		1 SLE				2 SLE
Ripley								1 CE				1 CE
Rush						3 SLE						3 SLE
St. Joseph						1 SLE						1 SLE
Shelby				1 SLE		5 SLE						6 SLE
Spencer							1 SLE					1 SLE
Sullivan							1 SLE					1 SLE
Tippecanoe						8 SLE						8 SLE



COUNTY	70	71	72	73	74	75	76	77	78	79	80	TOTAL
Tipton						2 SLE						2 SLE
Union						18 SLE	4 SLE			2 SLE		24 SLE
Vigo						8 SLE	1 CE	1 SLE				1 CE 9 SLE
Wabash						3 SLE						3 SLE
Warrick						3 SLE	1 SLE					4 SLE
Wayne						1 SLE	1 SLE	1 SLE				3 SLE
Wells						2 SLE						2 SLE
White						3 SLE						3 SLE
Whitley						1 SLE						1 SLE
TOTAL	1 SLE	15 SLE		2 SLE	1 SLE	8 CE 318 SLE	3 CE 20 SLE	5 CE 10 SLE	2 CE 2 SLE	4 CE 4 SLE	6 CE 7 SLE	28 CE 380 SLE

State: Iowa

Mosquito-borne Human Disease Cases

Arboviral activity is monitored in the Council Bluffs and Missouri River Valley near Omaha, Nebraska (Offutt AFB), using sentinel chicken flocks, nestling wild birds, and mosquito pools. Sentinel flocks usually become seropositive for western encephalitis in the Council Bluffs area. During 1979, virus isolates from mosquito pools collected near Council Bluffs included trivittatus (a California virus), western encephalitis virus, and Cache Valley virus. In 1980 one human case of St. Louis encephalitis was confirmed in Council Bluffs.



State: Kansas

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78*	79*	80*	TOTAL
Barton		2 SLE										2 SLE
Clark		1 SLE										1 SLE
Dickinson		2 SLE										2 SLE
Ellis		1 SLE										1 SLE
Ford		1 SLE 1 WEE										1 SLE 1 WEE
Harvey	2 SLE											2 SLE
Lincoln		2 SLE										2 SLE
Lyon	1 SLE	1 SLE										2 SLE
Marion		1 SLE										1 SLE
McPherson	2 SLE 1 WEE	1 SLE										3 SLE 1 WEE
Meade		1 SLE										1 SLE
Osage		1 SLE										1 SLE
Pawnee		1 SLE										1 SLE
Phillips	1 SLE	1 SLE	1 SLE									3 SLE

COUNTY	70	71	72	73	74	75	76	77	78*	79*	80*	TOTAL
Reno	2 SLE	4 SLE			1 SLE							7 SLE
Russell	1 SLE											1 SLE
Saline		2 SLE										2 SLE
Sedgwick	2 SLE	4 SLE			1 SLE							7 SLE
Sheridan		1 SLE										1 SLE
Stafford		2 SLE										2 SLE
Thomas		3 SLE 1 WEE										3 SLE 1 WEE
Unspec. County						35 SLE 7 WEE	12 SLE	1 WEE				47 SLE 8 WEE
TOTAL	11 SLE 1 WEE	32 SLE 2 WEE	1 SLE		2 SLE	35 SLE 7 WEE	12 SLE	1 WEE				93 SLE 11 WEE

\*State epidemiologist had no records available at time of contact.

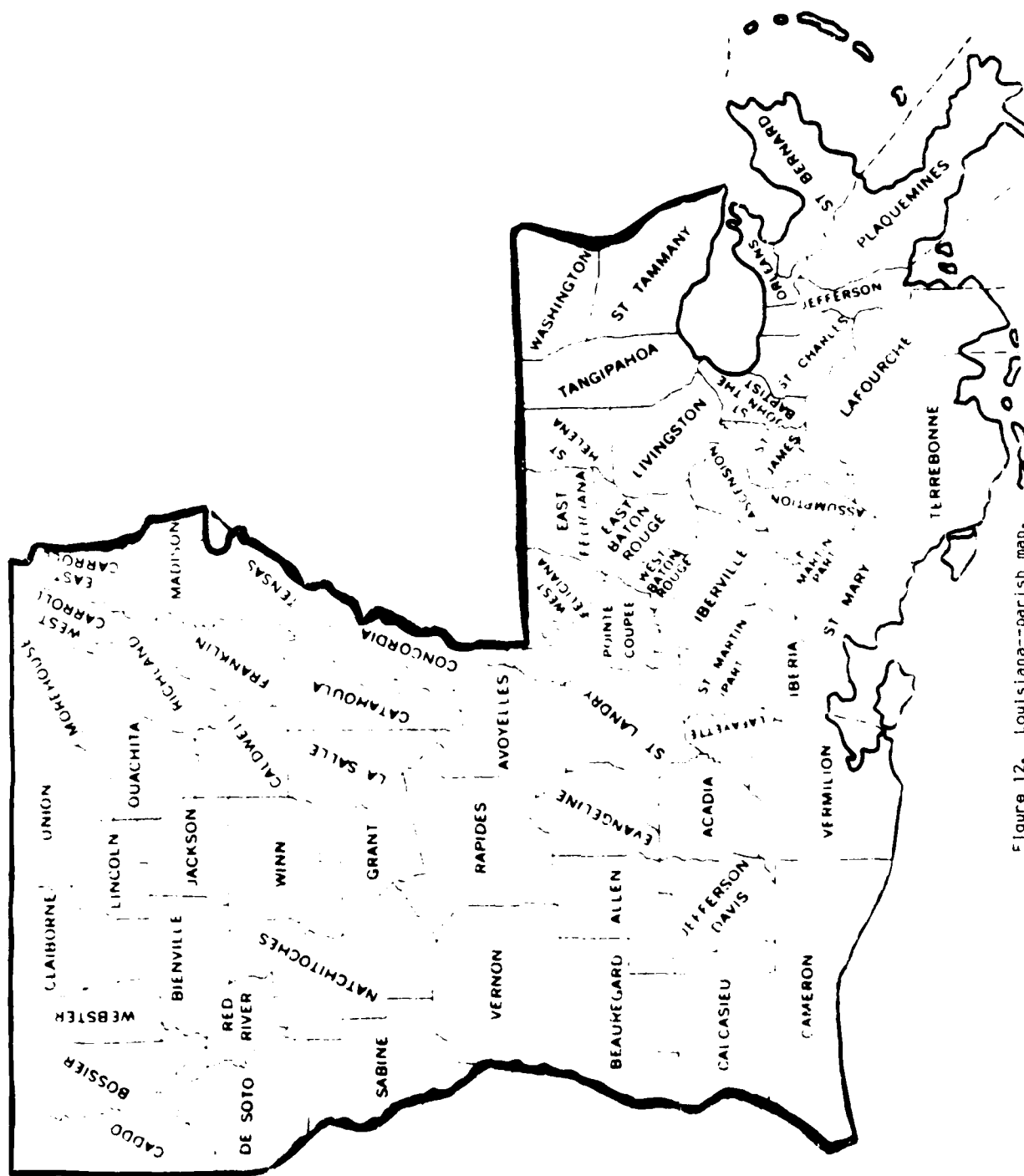


Figure 12. Louisiana--parish map.

State: Louisiana

Mosquito-borne Human Disease Cases

Year

PARISH	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Bossier							1 SLE					1 SLE
Catahoula						1 SLE						1 SLE
East Baton Rouge							2 SLE					2 SLE
Evangeline								1 SLE			1 SLE	2 SLE
Orleans							1 SLE				11 SLE	12 SLE
Ouachita						4 SLE						4 SLE
Plaquemines								1 SLE				1 SLE
Richland							1 SLE					1 SLE
Saint Tammany							1 SLE	1 SLE				2 SLE
Tangipahoa		1 SLE					1 SLE					2 SLE
Washington							1 SLE	1 SLE				2 SLE
West Carroll						1 SLE						1 SLE
TOTAL		1 SLE				6 SLE	8 SLE	4 SLE			12 SLE	31 SLE

<sup>a</sup> Through October 1980

State: Maine

No reports of mosquito-borne disease in the State of Maine.

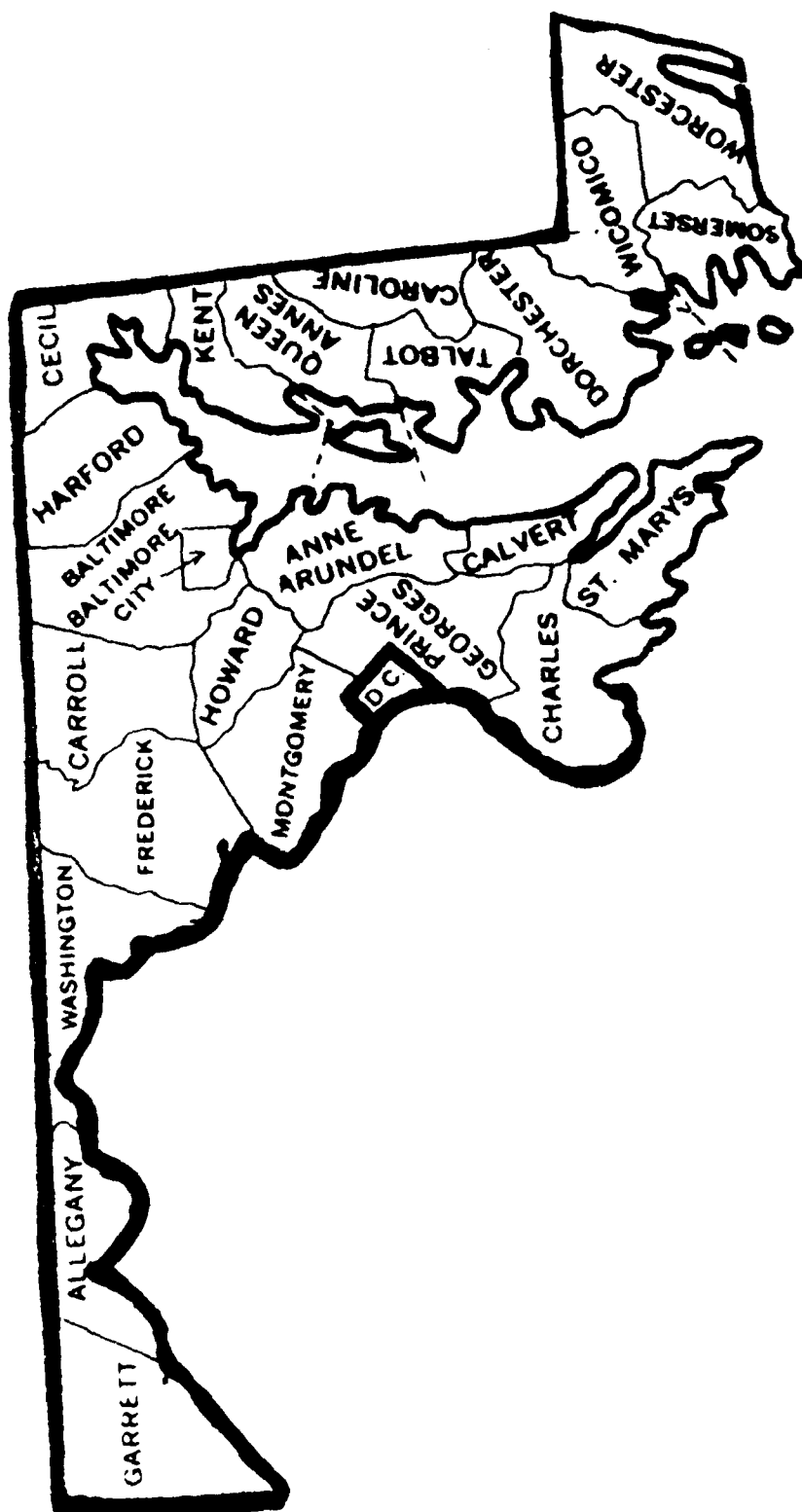


Figure 13. Maryland--county map.



State: Maryland

Mosquito-borne Human Disease Cases

COUNTY	Year										
	70*	71*	72*	73*	74*	75	76	77	78	79	80*
Anne Arundel						1 SLE					1 SLE
Baltimore City						1 SLE					1 SLE
Baltimore County						1 SLE					1 SLE
Prince Georges						4 SLE					4 SLE
Queen Annes						1 SLE					1 SLE
Talbot						1 SLE					1 SLE
TOTAL						9 SLE					9 SLE

\*State epidemiologist had no records available at time of contact.

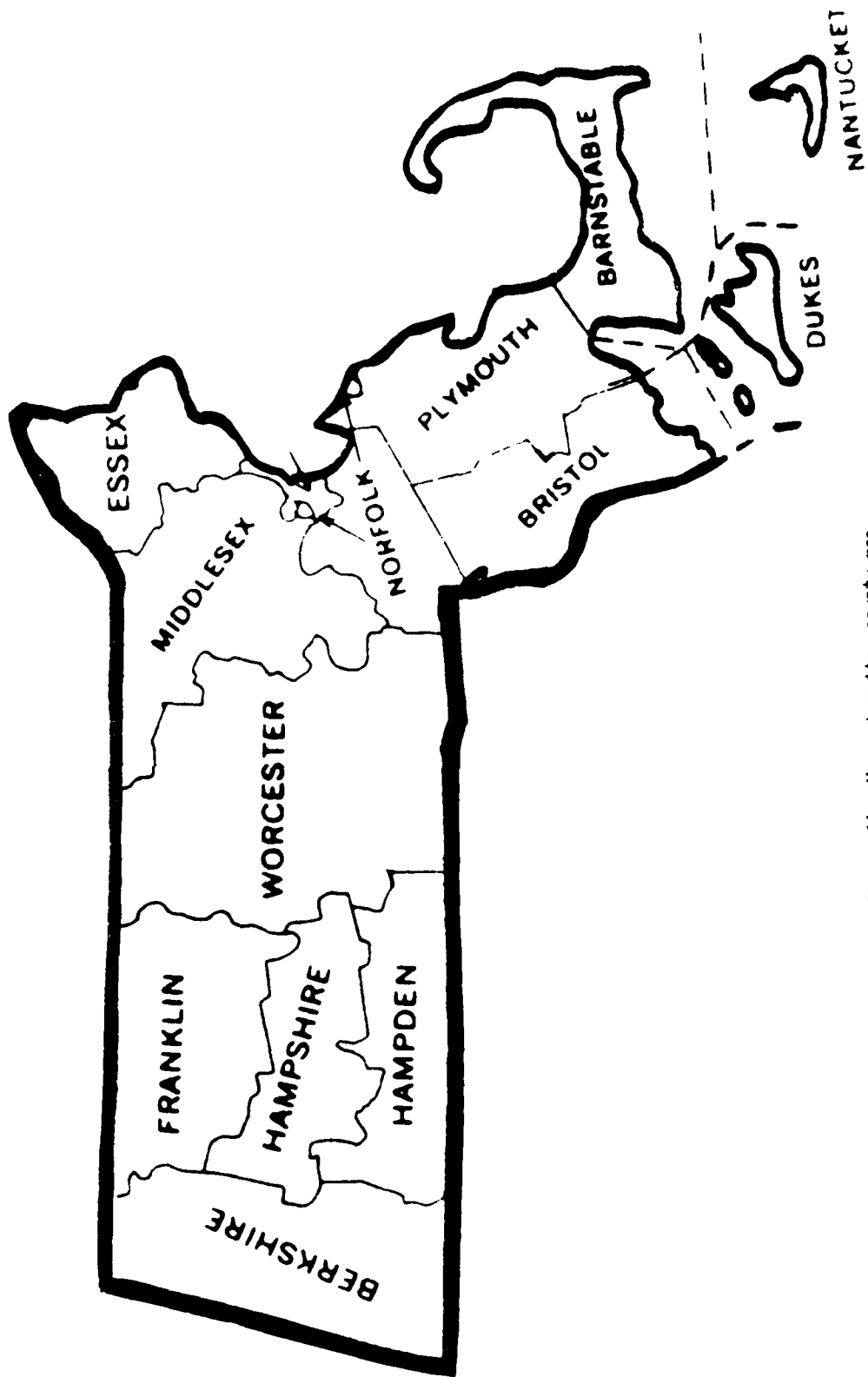


Figure 14. Massachusetts--county map.

State: Massachusetts

Mosquito-borne Human Disease Cases<sup>a</sup>

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Bristol					1 EEE							1 EEE
Middlesex				2 EEE								2 EEE
Norfolk					1 EEE	1 EEE						2 EEE
Plymouth	1 EEE				1 EEE							2 EEE
TOTAL	1 EEE			2 EEE	3 EEE	1 EEE						7 EEE

<sup>a</sup> State does not check for CE which may be present at low incidence levels.

\*State epidemiologist had no records available at time of contact.



Figure 15. Michigan--county map.

State: Michigan

Mosquito-borne Human Disease Cases<sup>a</sup>

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Arenac									1			1
Delta	3	1			1							5
Dickinson						1			1			2
Marquette	4	1	2	1		2	2	4		4		20
TOTAL	7	2	2	1	1	3	2	4	2	4		28

<sup>a</sup> All cases shown are viral encephalitis, specific etiologic agents unknown; not all are mosquito-borne.

\*State epidemiologist had no records available at time of contact.

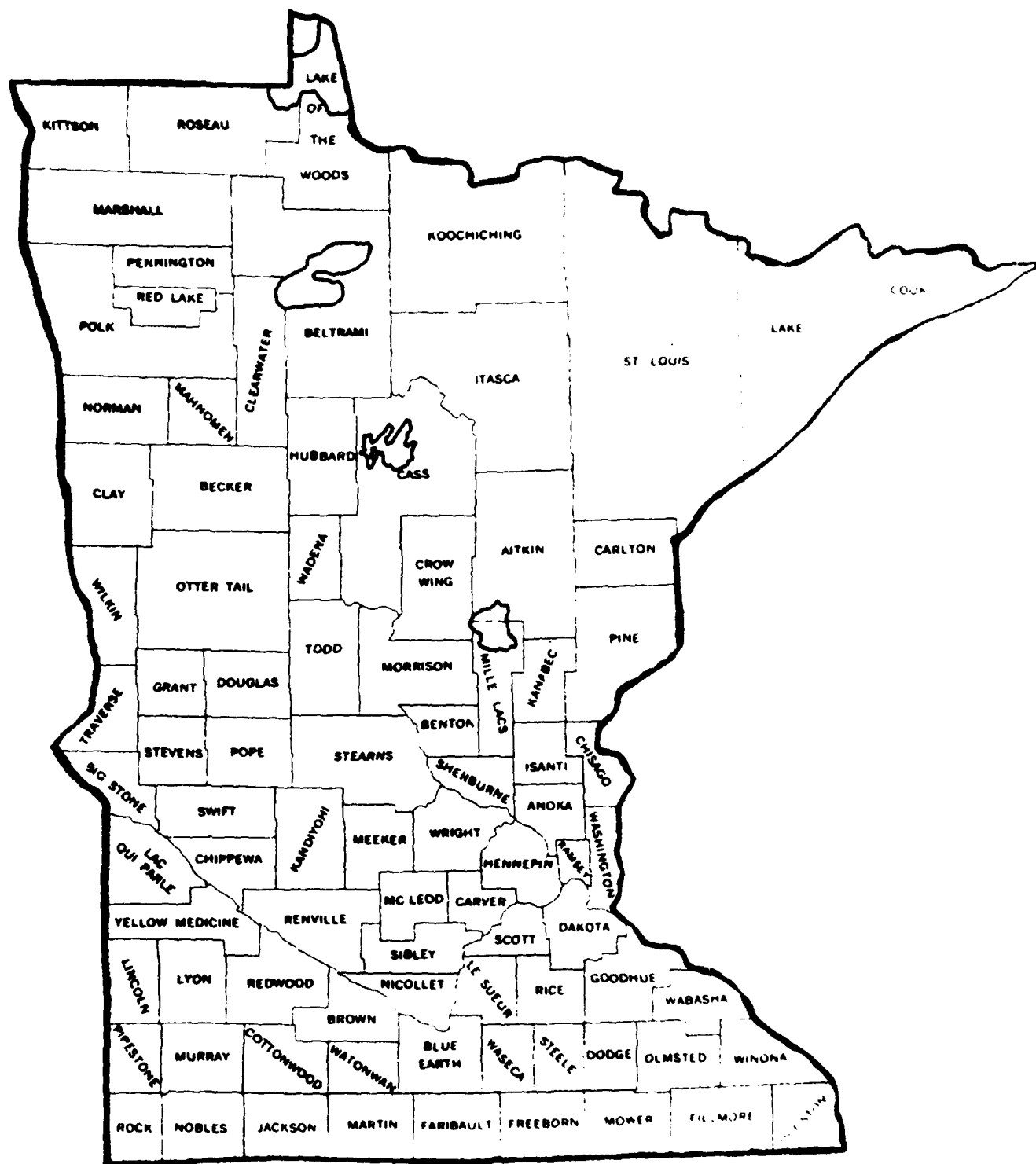


Figure 16. Minnesota--county map.

## Mosquito-borne Human Disease Cases

Year

COUNTY	70 <sup>a</sup>	71 <sup>a</sup>	72 <sup>a</sup>	73 <sup>a</sup>	74 <sup>a</sup>	75	76	77	78	79	80*	TOTAL
Anoka							1 SLE					1 SLE
Benton								1 WEE				1 WEE
Blue Earth				1 CE	1 CE	5 CE			2 CE			9 CE
Carver		1 CE			1 CE	1 WEE		1 WEE				2 CE 2 WEE
Chippewa						1 WEE						1 WEE
Clay								1 WEE				1 WEE
Dakota		1 CE				1 CE 1 WEE	1 SLE 1 CE	1 CE		4 CE		8 CE 1 SLE 1 WEE
Faribault						1 WEE						1 WEE
Fillmore			3 CE	1 CE	2 CE			1 CE	2 CE			9 CE
Goodhue			2 CE	4 CE	3 CE	3 CE	3 CE	1 CE	1 WEE 1 CE	9 CE		26 CE 1 WEE
Grant						1 WEE						1 WEE
Hennepin	6 CE	9 CE	3 CE	4 CE		2 CE 2 WEE	1 CE	2 CE	1 WEE	3 CE		30 CE 3 WEE

<sup>a</sup>Several cases reported as CE during these years were unconfirmed.

\*State epidemiologist had no records available at time of contact.

State: Minnesota  
(Continued)

Year

COUNTY	70 <sup>a</sup>	71 <sup>a</sup>	72 <sup>a</sup>	73 <sup>a</sup>	74 <sup>a</sup>	75	76	77	78	79	80*	TOTAL
Minneapolis City		1 CE		3 CE	1 CE	1 WEE			2 CE			7 CE 1 WEE
Houston	1 CE	1 CE	1 CE			4 CE		1 CE	9 CE	1 CE		18 CE
Itasca					1 CE							1 CE
Lac qui Parle							1 SLE					1 SLE
Martin	1 CE											1 CE
Mille Lacs									2 WEE			2 WEE
Mower	1 CE											1 CE
Nobles						1 WEE						1 WEE
Olmsted	1 CE		1 CE	1 CE	1 CE	4 CE	1 SLE					8 CE 1 SLE
Otter Tail								2 WEE				2 WEE
Polk						1 WEE		1 WEE				2 WEE
Ramsey		1 CE		1 CE				1 CE 1 WEE				3 CE 1 WEE
St. Paul City	2 CE		1 CE	2 CE		1 WEE			1 CE			6 CE 1 WEE
Redwood			1 CE									1 CE



COUNTY	70 <sup>a</sup>	71 <sup>a</sup>	72 <sup>a</sup>	73 <sup>a</sup>	74 <sup>a</sup>	75	76	77	78	79	80*	TOTAL
Rice			1 CE	1 CE	1 CE							3 CE
Roseau						1 WEE						1 WEE
Duluth City	1 CE				1 CE							2 CE
Scott	1 CE		1 CE							1 CE		3 CE
Sherburne						1 WEE						1 WEE
Wabasha			1 CE							1 CE		2 CE
Washington	1 CE		2 CE	3 CE		1 CE						7 CE
Wilkin						1 WEE						1 WEE
Winona	4 CE	4 CE	2 CE	1 CE	3 CE	3 CE		4 CE 1 WEE	9 CE	13 CE		43 CE 1 WEE
Wright						1 CE						1 CE
Out-of-State	1 CE	3 CE	4 CE	3 CE	1 CE	1 WEE						12 CE 1 WEE
TOTAL	20 CE	21 CE	23 CE	25 CE	16 CE	24 CE 15 WEE	5 CE 4 SLE	11 CE 8 WEE	26 CE 4 WEE	32 CE		203 CE 4 SLE 27 WEE

<sup>a</sup> Several cases reported as CE during these years were unconfirmed.

\*State epidemiologist had no records available at time of contact.



State: Mississippi

Mosquito-borne Human Disease Cases<sup>a</sup>

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Adams				1			1	2	2			6
Alcorn					1	2				1		4
Amite						1	2			1		4
Benton					2	3	1	1				7
Bolivar						15	14	3		3		35
Calhoun							1	3				4
Carroll						1						1
Chickasaw							3					3
Choctaw				1				1				2
Clarke		1										1
Clay						1	7	4				12
Coahoma		1				7	23	4	1	2		38
Copiah				1	1		1	1				4
Covington						1		1				2
Desoto		2	1	1	6	3	3	2	1	1		20

<sup>a</sup>All cases are viral encephalitides, specific etiologic agents unknown; not all are mosquito-borne.

\*State epidemiologist had no records available at time of contact.

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Forrest				3	2		18	3	2	1		29
Franklin						1		1				2
George		1		1				1				3
Greene		1				1						2
Grenada							2					2
Hancock	1							1				2
Harrison	1			3	1	5	14	5		1		30
Hinds	2	8	4	8	13	27	42	19	1	6		130
Holmes						2	6					8
Humphreys						6	2					8
Itawamba						1						1
Jackson					1		4	2		3		10
Jasper				1	1							2
Jefferson	1											1
Jeff Davis					1	1	3					5

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Jones	1	1			1	2	1			1		7
Kemper						1						1
Lafayette		1			1	1	1	1				5
Lamar						3	1					4
Lauderdale		2				3	1	1				7
Lawrence					1		2					3
Leake	1			1			2					4
Lee					1	2	8	1	2	1		15
Leflore		1				4	15	1				21
Lincoln					1	2		1				4
Lowndes						8	2	2				12
Madison				1	3	3	1					8
Marion					1	2	2					5
Marshall					2	2	1		1			6
Monroe		1			1		2	1				5

\*State epidemiologist had no records available at time of contact.

State: Mississippi  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Montgomery					1	2	9					12
Neshoba			1	1	1	1	4	2	1	1		12
Newton			2	1	2	1						6
Noxubee							1					1
Oktibbeha			1			1	1		2			5
Panola					1							1
Pearl River							1					1
Perry					1		1					2
Pike	1		1				1					3
Pontotoc		1					1					2
Prentiss		1					1	2				4
Quitman					3	3	4					10
Rankin				2	4	2	7	3		1		19
Scott						1	2	1				4
Sharkey						2	1					3

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Simpson				1			3	1		1		6
Smith							1	2	1			4
Stone					1			1				2
Sunflower				1	6	8	4			3		22
Tallahatchie					2	1	7					10
Tate	2								1			3
Tippah						1		1				2
Tishomingo	1						2					3
Tulca					4	1	1					6
Union						1	9	1				11
Walthall							1					1
Warren	1	1			1	1	9	5	1	8		27
Washington	1				4	67	12	1	2	17		104
Wayne										1		1
Webster							1	1				2

\*State epidemiologist had no records available at time of contact.

State: Mississippi  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Wilkinson							1					1
Winston		1					3	1	1	1		7
Yalobusha							2			1		3
Yazoo		3				1		2				6
TOTAL	13	27	10	28	72	205 <sup>b</sup>	276 <sup>c</sup>	86 <sup>d</sup>	19 <sup>e</sup>	55		791

\*State epidemiologist had no records available at time of contact.

b CDC reports 210 SLE cases for this year in Mississippi.

c 81 SLE, 195 unknown

d 5 SLE, 81 unknown

e 2 SLE, 17 unknown





State: Missouri

Mosquito-borne Human Disease Cases

Year

COUNTY	70*	71*	72*	73*	74*	75	76	77	78	79	80*	TOTAL
Butler							1 SLE					1 SLE
Buchanan										1 OE		1 OE
Callaway							2 SLE					2 SLE
Cape Girardeau							2 SLE					2 SLE
Dunklin							4 SLE					4 SLE
Greene								1 OE		1 OE		2 OE
Lincoln							1 SLE					1 SLE
Monroe							1 SLE					1 SLE
New Madrid							1 SLE					1 SLE
Oregon										1 OE		1 OE
Pemiscot							1 SLE					1 SLE
Perry							1 SLE					1 SLE
St. Charles							1 SLE					1 SLE
St. Louis City							1 SLE					1 SLE
St. Louis County							1 SLE					1 SLE

COUNTY	70*	71*	72*	73*	74*	75	76	77	78	79	80*	TOTAL
Stoddard							3 SLE					3 SLE
Unspec. County						37 SLE						37 SLE
TOTAL						37 SLE	20 SLE	1 CE		3 CE		4 CE 57 SLE

\*State epidemiologist had no records available at time of contact.

State: Montana

Mosquito-borne Human Disease Cases

Specific yearly incidence of mosquito-borne disease unknown. In 1975, there were 4 human cases of WEE. Random samples of human sera in Montana revealed 3.6% had antibodies to WEE and 1.7% had antibodies to SLE.

State: Nebraska

Mosquito-borne Human Disease Cases

For the past 20 years fewer than 10 cases/year of mosquito-borne encephalitis have been reported from Nebraska. A statewide serological survey in the early 1970s found antibodies to St. Louis or western encephalitis in approximately 10% of the population sampled. Based on the serological survey, arboviral activity appeared to be greatest in the Republican Valley of south-central Nebraska; however, few human cases have been reported from this area. St. Louis encephalitis is more common in eastern Nebraska while western encephalitis is more common in western Nebraska. Center for Disease Control statistics for the period 1975-1978 show only 12 cases of SLE and 8 cases of WEE, all of which occurred in 1975.

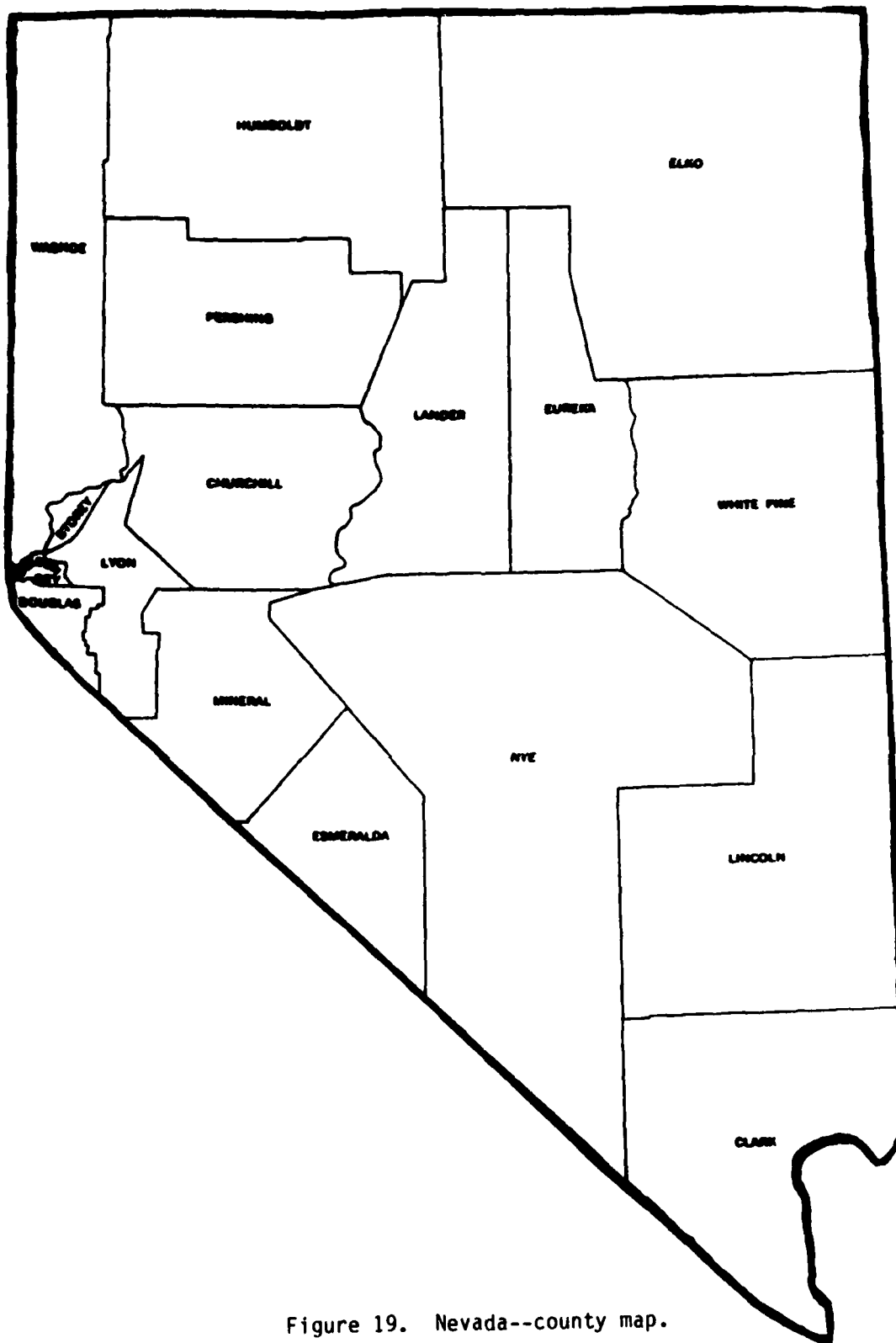


Figure 19. Nevada--county map.

State: Nevada

Mosquito-borne Human Disease Cases

Reporting sketchy, general incidence low; 2 cases SLE reported in 1980 at Fallon NAS, Churchill County.

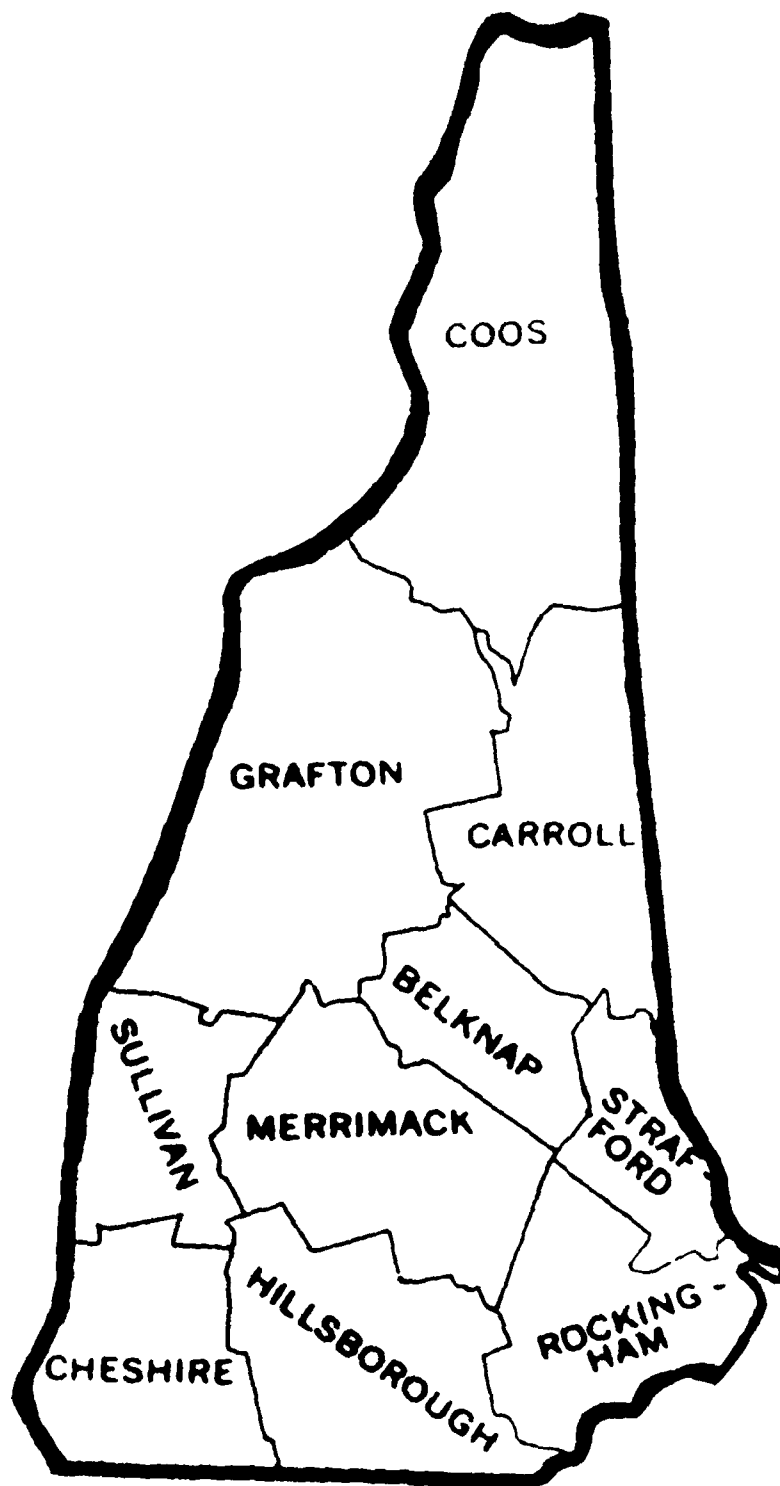


Figure 20. New Hampshire--county map.



State: New Hampshire

Mosquito-borne Human Disease Cases

Only 2 cases of EEE confirmed, both in Rockingham County; occurring in 1973 and 1980.

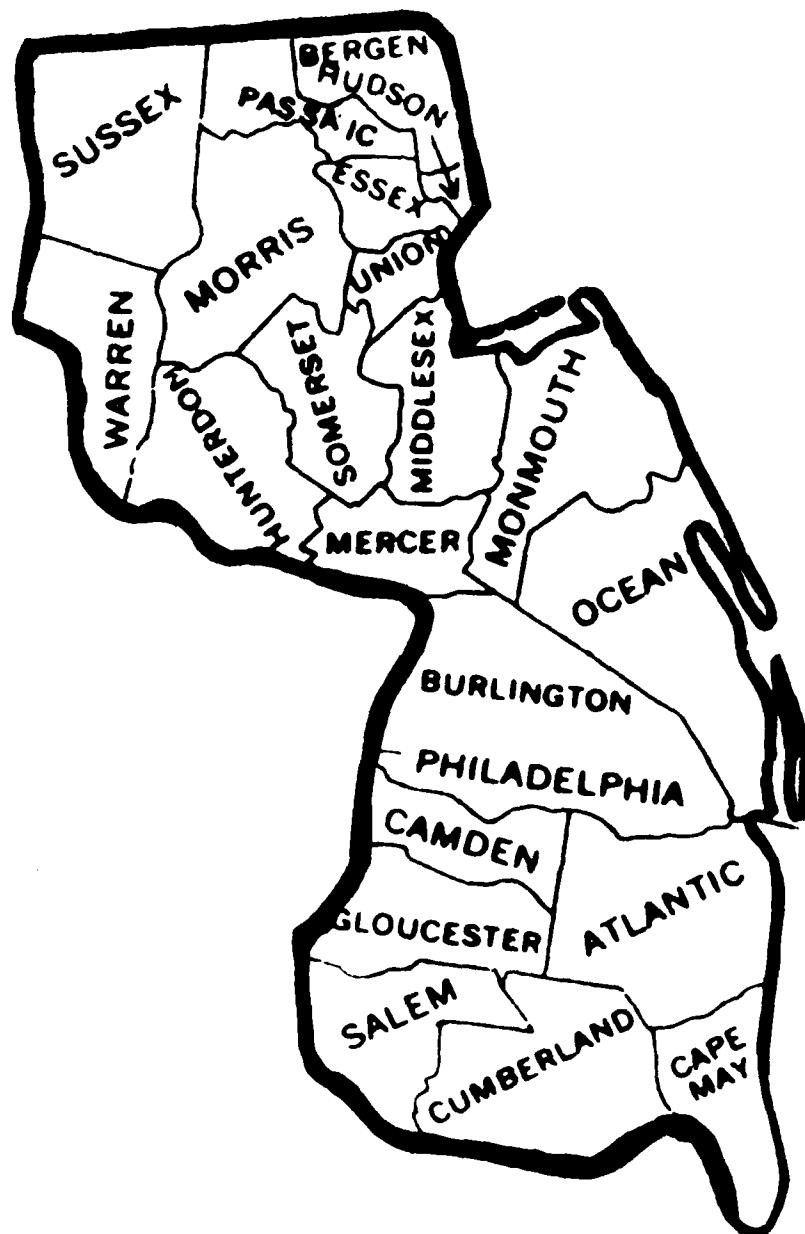


Figure 21. New Jersey--county map.

## Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Atlantic				2 EEE								2 EEE
Bergen					1 CE							1 CE
Burlington						7 SLE						7 SLE
Camden						6 SLE	1 SLE					7 SLE
Cumberland				1 CE		3 SLE						1 CE 3 SLE
Gloucester						3 SLE	1 SLE					4 SLE
Mercer						3 SLE						3 SLE
Middlesex						6 SLE						6 SLE
Monmouth						1 SLE		1 CE				1 CE 1 SLE
Ocean				1 CE								1 CE
Sussex						1 CE						1 CE
Union						1 CE		1 CE				2 CE
TOTAL				2 CE 2 EEE	1 CE	2 CE 29 SLE	2 SLE	2 CE				7 CE 2 EEE 31 SLE

\*State epidemiologist had no records available at time of contact.

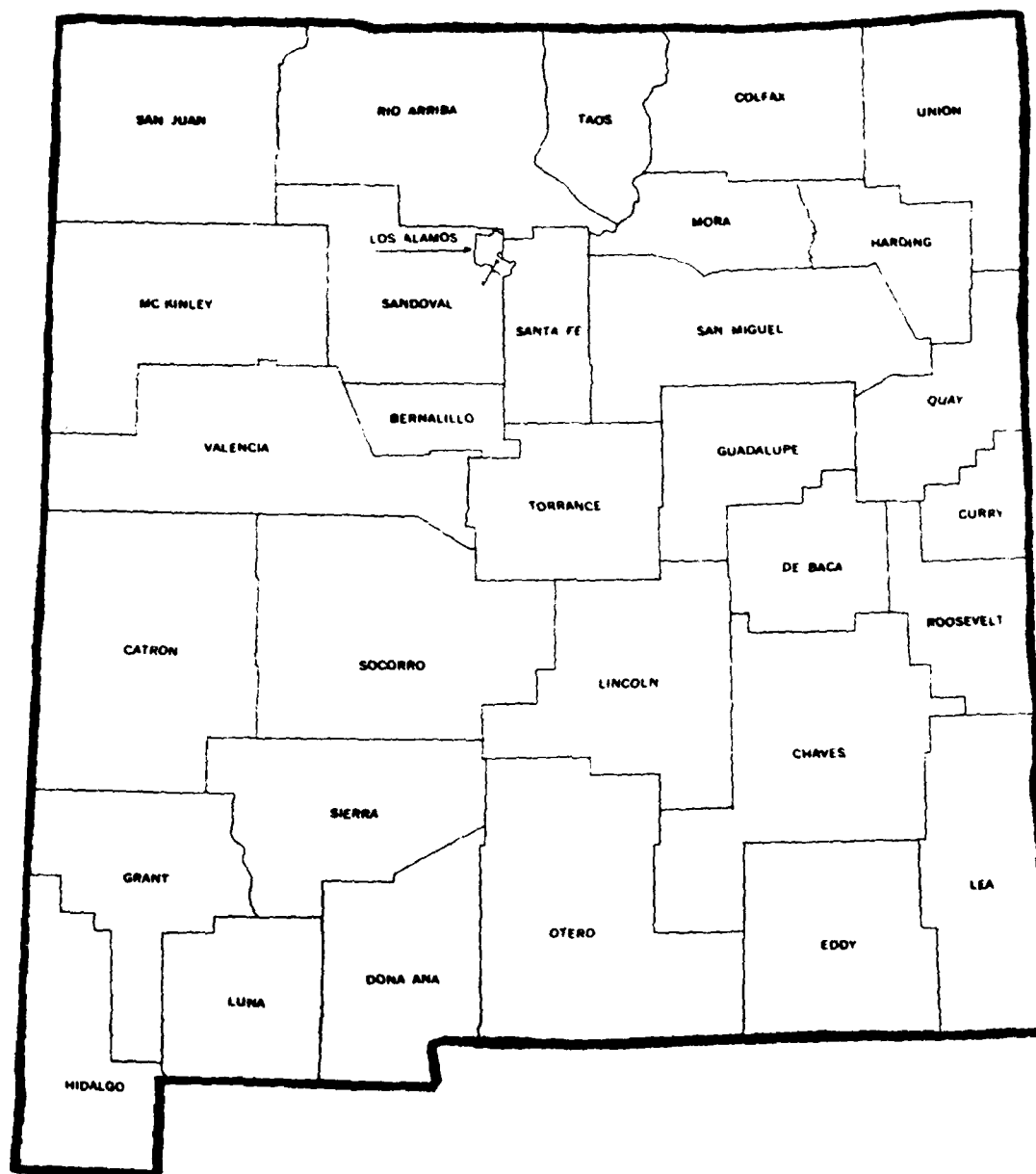


Figure 22. New Mexico--county map.

State: New Mexico

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Chaves									1 SLE			1 SLE
Dona Ana								2 WEE				2 WEE
Eddy									1 SLE			1 SLE
Lea						1 WEE						1 WEE
Quay						1 SLE 2 WEE						1 SLE 2 WEE
Rio Arriba								1 WEE				1 WEE
Sandoval				1 WEE								1 WEE
TOTAL				1 WEE		1 SLE 3 WEE		3 WEE	2 SLE			3 SLE 7 WEE

\*State epidemiologist had no records available at time of contact.



Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Oneida				1 SLE								1 SLE
Onondaga							1 CE					1 CE
Oswego		1 EEE										1 EEE
Unspec. County									1 SLE			1 SLE
TOTAL		1 EEE		1 SLE			1 CE		1 SLE			1 CE 1 EEE 2 SLE

\*State epidemiologist had no records available at time of contact.

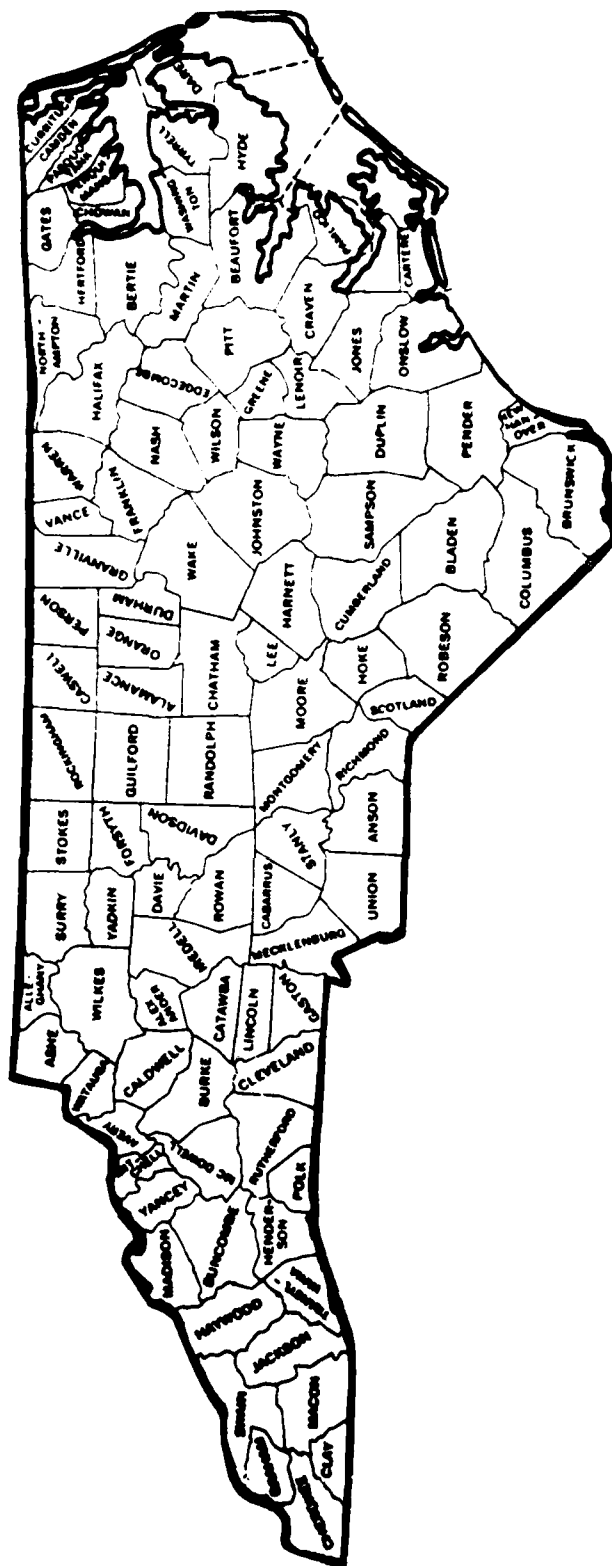


Figure 24. North Carolina--county map.



State: North Carolina

Mosquito-borne Human Disease Cases

COUNTY	Year											TOTAL
	70	71	72	73	74	75	76	77	78	79	80	
Ashe										1 CE		1 CE
Durham						1 SLE			1 SLE			2 SLE
Jackson									1 CE		1 CE	2 CE
Swain								4 CE		3 CE		7 CE
TOTAL						1 SLE		4 CE	1 CE 1 SLE	4 CE	1 CE	10 CE 2 SLE

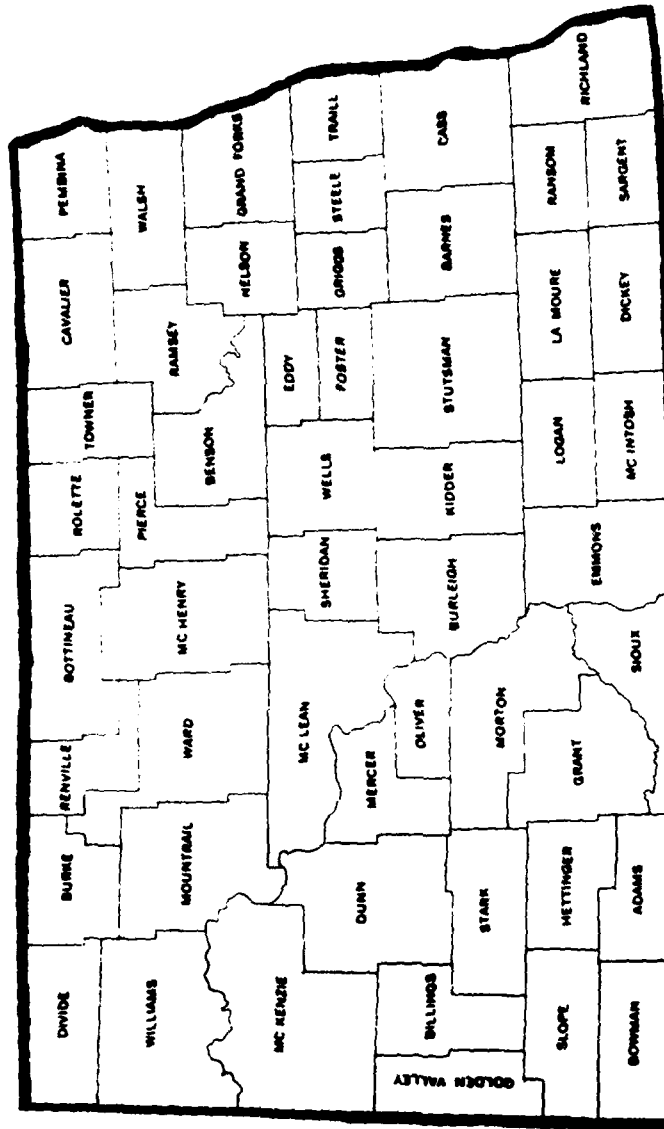


Figure 25. North Dakota--county map.

State: North Dakota

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Adams						2 WEE						2 WEE
Burke						2 WEE						2 WEE
Burleigh				1 UNK		6 WEE 1 SLE						1 SLE 1 UNK 6 WEE
Cass				1 UNK		1 SLE 4 WEE						1 SLE 1 UNK 4 WEE
Cavalier						1 SLE						1 SLE
Eddy						2 WEE						2 WEE
Emmons						1 WEE						1 WEE
Foster						1 SLE 1 WEE						1 SLE 1 WEE
Grand Forks				1 UNK	1 UNK	1 SLE		1 WEE				1 SLE 2 UNK 1 WEE
Grant						1 WEE						1 WEE
Griggs						1 WEE						1 WEE

State: North Dakota  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Kidder						1 WEE						1 WEE
Logan						1 WEE						1 WEE
McIntosh						1 WEE						1 WEE
McKenzie						1 UNK						1 UNK
McLean	1 UNK			1 UNK		1 WEE	1 SLE					1 SLE 2 UNK 1 WEE
Morton						2 SLE 3 WEE						2 SLE 3 WEE
Mountrail						1 SLE 2 WEE						1 SLE 2 WEE
Pembina						1 WEE						1 WEE
Pierce		1 UNK				1 SLE 1 WEE						1 SLE 1 UNK 1 WEE
Ransom						1 WEE						1 WEE
Richland						1 SLE						1 SLE
Sargent	1 UNK					1 WEE						1 UNK 1 WEE

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
StouX						2 SLE 1 WEE						2 SLE 1 WEE
Stark		1 UNK		1 UNK								2 UNK
Stutsman	2 UNK					3 WEE	1 SLE					1 SLE 2 UNK 3 WEE
Trall	1 UNK			1 UNK		2 WEE						2 UNK 2 WEE
Ward			1 UNK	1 UNK			1 SLE	2 WEE				1 SLE 2 UNK 2 WEE
Wells						2 WEE	1 SLE					1 SLE 2 WEE
TOTAL	5 UNK	2 UNK	1 UNK	7 UNK	1 UNK	12 SLE 1 UNK 41 WEE	4 SLE	3 WEE				16 SLE 17 UNK 44 WEE

\*State epidemiologist had no records available at time of contact.



State: Ohio

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Allen	2 CE			1 CE		3 CE 14 SLE	3 CE 1 SLE					9 CE 15 SLE
Ashland	1 CE	1 CE				1 SLE						2 CE 1 SLE
Ashtabula	1 CE					1 CE		1 CE				3 CE
Athens	2 CE					1 SLE	1 CE					3 CE 1 SLE
Auglaize						1 CE	1 CE					2 CE
Butler						10 SLE	1 SLE					11 SLE
Champaign						3 SLE			2 SLE			5 SLE
Clark						7 SLE						7 SLE
Clermont						1 SLE						1 SLE
Clinton						1 CE 3 SLE						1 CE 3 SLE
Columbiana									1 CE			1 CE
Coshocton	1 CE		1 CE									2 CE

\*State epidemiologist had no records available at time of contact.

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Crawford				1 CE		2 SLE						1 CE 2 SLE
Cuyahoga	1 CE	1 CE	1 CE	2 CE		4 CE 84 SLE	3 CE	3 CE	2 CE 1 SLE	1 CE		18 CE 85 SLE
Drake						1 CE	1 SLE					1 CE 1 SLE
Defiance	1 CE	2 CE	1 CE	1 CE		4 CE 2 SLE		2 CE				11 CE 2 SLE
Erie				1 CE		1 SLE						1 CE 1 SLE
Fairfield	2 CE			1 CE		2 SLE						3 CE 2 SLE
Franklin	6 CE	1 CE	1 CE			3 CE 142 SLE	2 SLE	1 SLE	1 SLE	2 CE		13 CE 146 SLE
Fulton						2 SLE						2 SLE
Gallia						1 SLE						1 SLE
Geauga						1 CE	1 CE			1 CE		3 CE
Greene						1 CE 1 SLE						1 CE 1 SLE



COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Guernsey					1 CE	1 SLE						1 CE 1 SLE
Hamilton		1 CE				1 CE 13 SLE	1 SLE	3 SLE				2 CE 17 SLE
Hancock				1 CE		2 CE 4 SLE	1 CE		1 CE			5 CE 4 SLE
Hardin		1 CE				1 SLE						1 CE 1 SLE
Henry						2 SLE	1 CE					1 CE 2 SLE
Highland						1 SLE						1 SLE
Hocking	2 CE	1 CE	1 CE			1 CE			1 CE			6 CE
Holmes						1 CE				1 CE		2 CE
Huron	1 CE					1 SLE						1 CE 1 SLE
Jackson						1 SLE						1 SLE
Jefferson										1 CE		1 CE
Knox	8 CE	3 CE	5 CE	6 CE	1 CE	5 CE 2 SLE	1 CE	1 CE		4 CE		34 CE 2 SLE

\*State epidemiologist had no records available at time of contact.

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Lake		1 CE				3 CE 5 SLE						4 CE 5 SLE
Lawrence						1 SLE						1 SLE
Licking	3 CE	1 CE	1 CE			1 CE						6 CE
Logan	1 CE	1 CE		1 CE		1 CE						4 CE
Lorain	2 CE	1 CE			1 CE	16 SLE	1 CE		1 CE	4 CE		10 CE 16 SLE
Lucas						2 CE 5 SLE						2 CE 5 SLE
Mahoning	1 CE	1 CE	1 CE			1 CE						4 CE
Marion	1 CE	1 CE				2 SLE	1 CE					3 CE 2 SLE
Medina	1 CE					1 SLE				1 CE		2 CE 1 SLE
Meigs		1 CE										1 CE
Mercer	1 CE		1 CE	2 CE		1 CE 2 SLE						5 CE 2 SLE
Miami		1 CE				1 CE 2 SLE		1 CE	1 CE			4 CE 2 SLE

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Montgomery		1 OE				16 SLE	1 SLE	1 OE				2 OE 17 SLE
Morrow							1 OE			2 OE		3 OE
Ottawa						1 SLE						1 SLE
Paulding						4 SLE				1 OE		1 OE 4 SLE
Perry		1 OE						1 OE	1 OE	2 OE		5 OE
Pickway				1 OE		5 SLE	2 SLE					1 OE 7 SLE
Pike						1 OE						1 OE
Portage	1 OE					1 OE 1 SLE						2 OE 1 SLE
Putnam						1 SLE	1 SLE		1 OE			1 OE 2 SLE
Richland			2 OE	1 OE	1 OE	4 SLE						4 OE 4 SLE
Ross		3 OE	2 OE			1 SLE	2 OE		1 SLE	2 OE		9 OE 2 SLE
Sandusky			1 OE			1 OE			1 OE	1 OE		4 OE

\*State epidemiologist had no records available at time of contact.

State: Ohio  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Scioto						5 SLE						5 SLE
Seneca						2 CE 4 SLE	1 CE		1 CE			4 CE 4 SLE
Shelby						1 SLE						1 SLE
Stark				1 CE		1 CE 2 SLE						2 CE 2 SLE
Summit		1 CE	1 CE			3 CE 12 SLE	1 CE			1 CE		7 CE 12 SLE
Trumbull	1 CE		2 CE			1 SLE		1 CE				4 CE 1 SLE
Union	1 CE	1 CE				1 CE		2 CE				5 CE
Van Wert						3 SLE						3 SLE
Warren						4 SLE						4 SLE
Wayne				1 CE		4 SLE				1 CE		2 CE 4 SLE
Williams	1 CE					1 SLE						1 CE 1 SLE
Wood	2 CE					1 CE 8 SLE						3 CE 8 SLE

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SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TX  
MOSQUITO VECTORS COLLECTED AT CONUS USAF INSTALLATIONS AND MOSQ--ETC(U)  
DEC 81 J T LANG, D D PINKOVSKY, R J MCKENNA  
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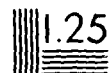
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$$V = \frac{1}{2} \left( \frac{1}{\mu_0} \mathbf{E} \cdot \mathbf{E} + \frac{1}{\epsilon_0} \mathbf{B} \cdot \mathbf{B} \right) \quad (1)$$

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Wyandot						1 SLE						1 SLE
TOTAL	44 CE	26 CE	21 CE	21 CE	4 CE	51 CE 416 SLE	19 CE 10 SLE	13 CE 4 SLE	11 CE 5 SLE	25 CE		235 CE 435 SLE

\*State epidemiologist had no records available at time of contact.

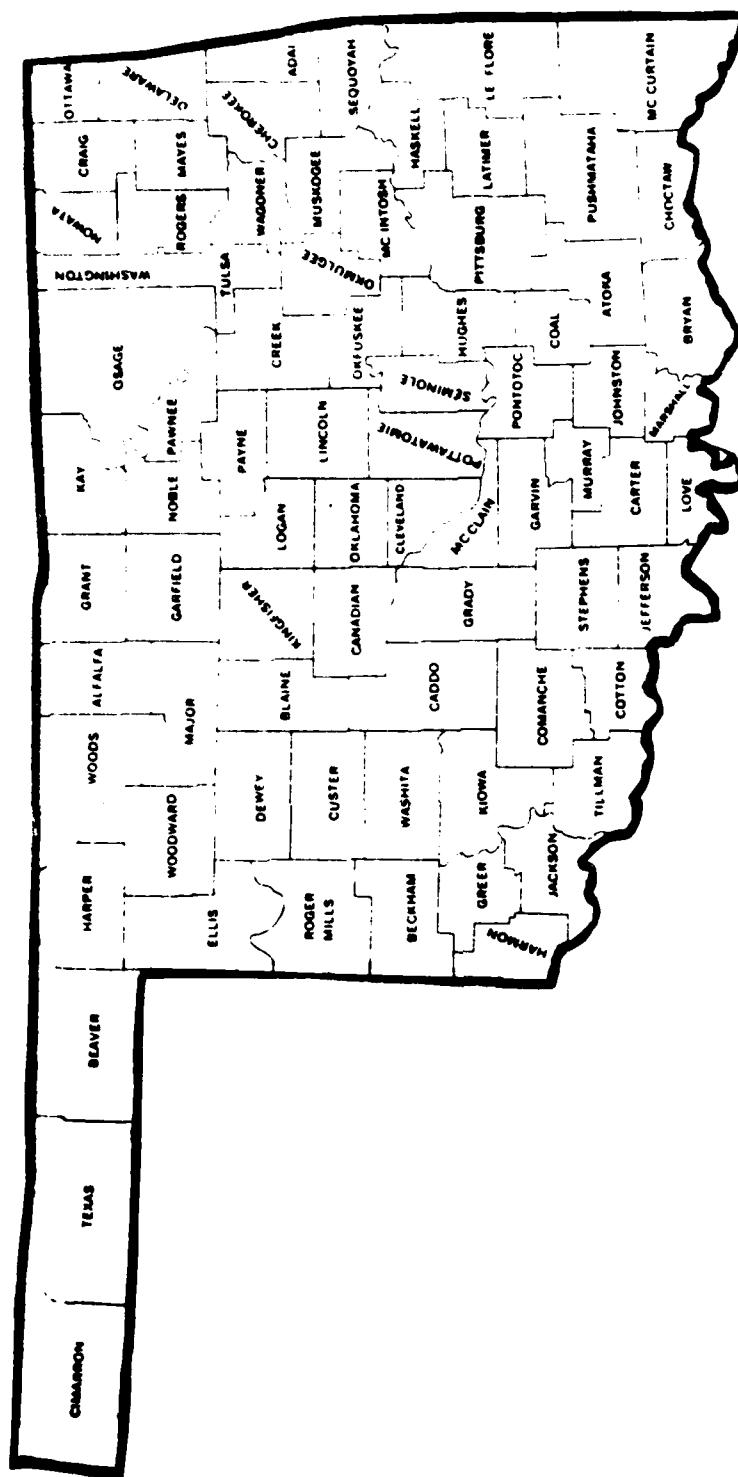


Figure 27. Oklahoma--county map.



State: Oklahoma

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Alfalfa	1 SLE											1 SLE
Beaver		2 SLE										2 SLE
Cleveland	1 SLE											1 SLE
Harmon		1 SLE										1 SLE
Logan						1 WEE						1 WEE
Muskogee							1 SLE					1 SLE
Noble		1 SLE										1 SLE
Oklahoma						1 SLE						1 SLE
Rogers	1 WEE											1 WEE
Tulsa				1 SLE		2 SLE						3 SLE
Woods						1 SLE						1 SLE
TOTAL	2 SLE 1 WEE	4 SLE		1 SLE		4 SLE 1 WEE	1 SLE					12 SLE 2 WEE

\*State epidemiologist had no records available at time of contact.

State: Oregon

Mosquito-borne Human Disease Cases

One case of WEE reported in Umatilla County in 1969. No cases reported in the 1970s.

State: South Carolina

Mosquito-borne Human Disease Cases

Etiologic agents involved in encephalitis not identified. Center for Disease Control statistics show no arboviral-caused encephalitis occurring 1975-1978.

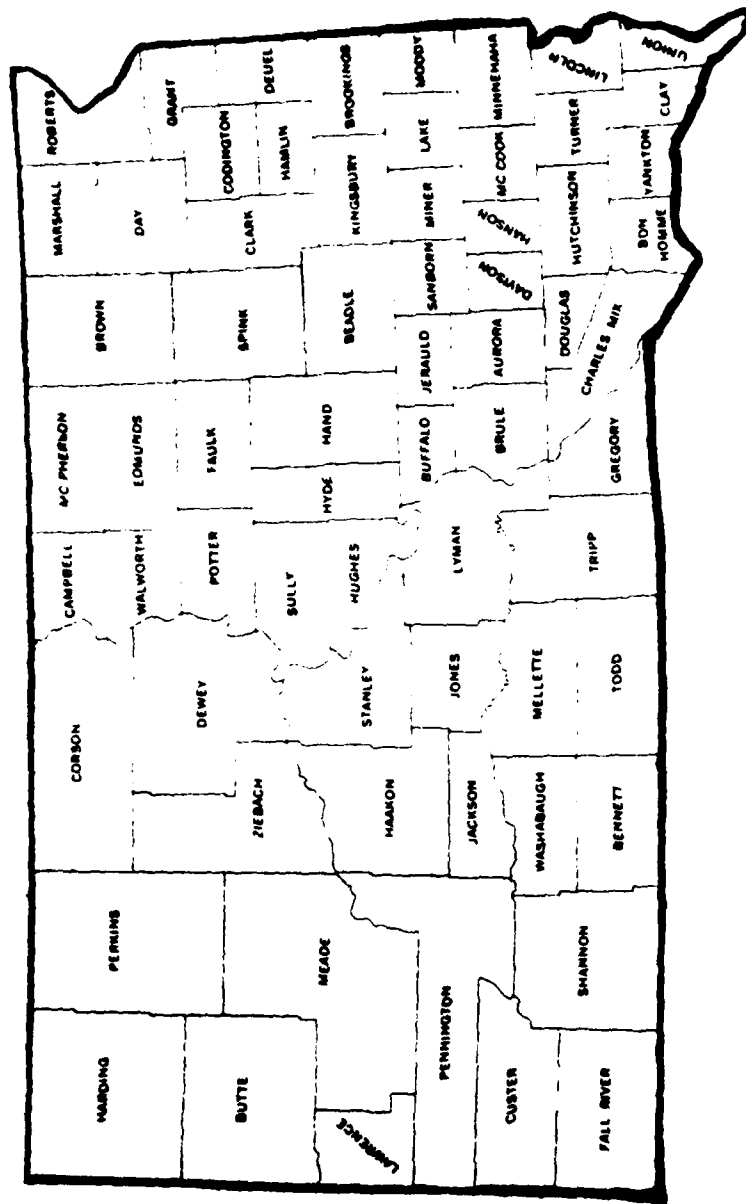


Figure 28. South Dakota--county map.

State: South Dakota

Mosquito-borne Human Disease Cases<sup>a</sup>

Year

COUNTY	70*	71	72	73	74	75	76	77	78	79	80*	TOTAL
Bennett		1										1
Bon Homme						1 WEE						1
Brookings		2				1 WEE		1				4
Brown						5 WEE						5
Buffalo						1 WEE						1
Charles Mix						1 WEE						1
Codington		2				1 WEE						3
Corson						1 WEE						1
Davison						2 WEE						2
Edmunds						1 WEE						1
Fall River						1 WEE						1
Hand						1 WEE						1
Hughes						1 WEE						1
Kingsbury						1 WEE		1				2
Lake		1										1

<sup>a</sup>Except for 1975, most viral encephalitis cases caused by unknown etiologic agent.

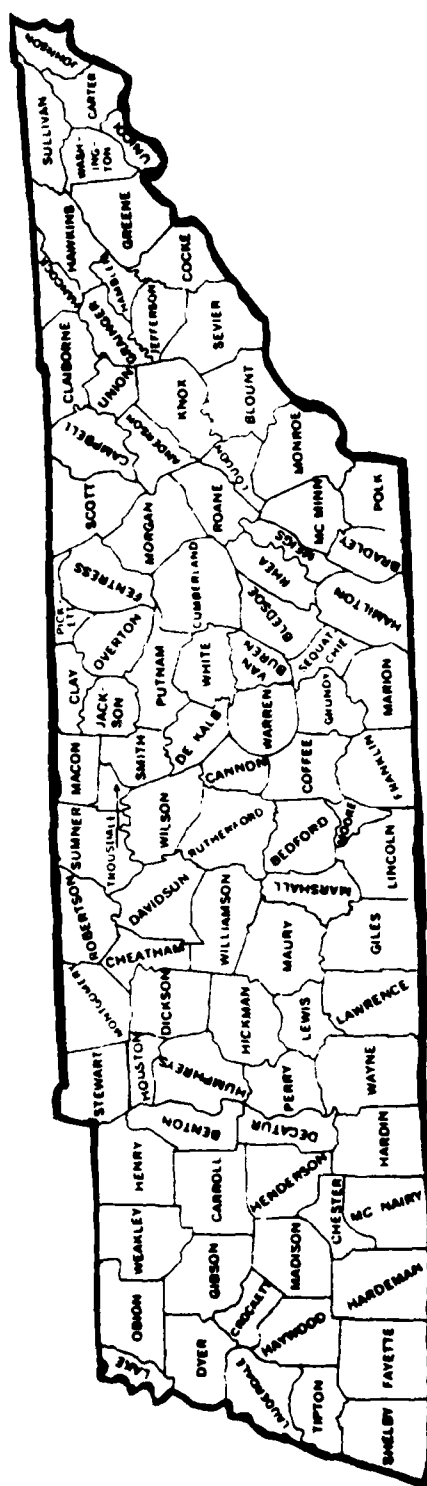
\*State epidemiologist had no records available at time of contact.

State: South Dakota  
(Continued)

Year

COUNTY	70*	71	72	73	74	75	76	77	78	79	80*	TOTAL
Lyman						1 WEE						1
McCook		1				1 WEE						2
McPherson						2 WEE						2
Meade		1										1
Minnehaha		1	1			3 WEE	1 SLE	1		1		8
Perkins								1				1
Roberts						2 WEE						2
Sanborn						1 WEE						1
Spink								1				1
Tripp								1				1
Union						1 WEE						1
TOTAL		9 UNK	1 UNK			29 WEE	1 SLE	3 WEE 3 UNK		1 UNK		1 SLE 14 UNK 32 WEE

\*State epidemiologist had no records available at time of contact.



**Figure 29. Tennessee-county map.**

State: Tennessee

Mosquito-borne Human Disease Cases

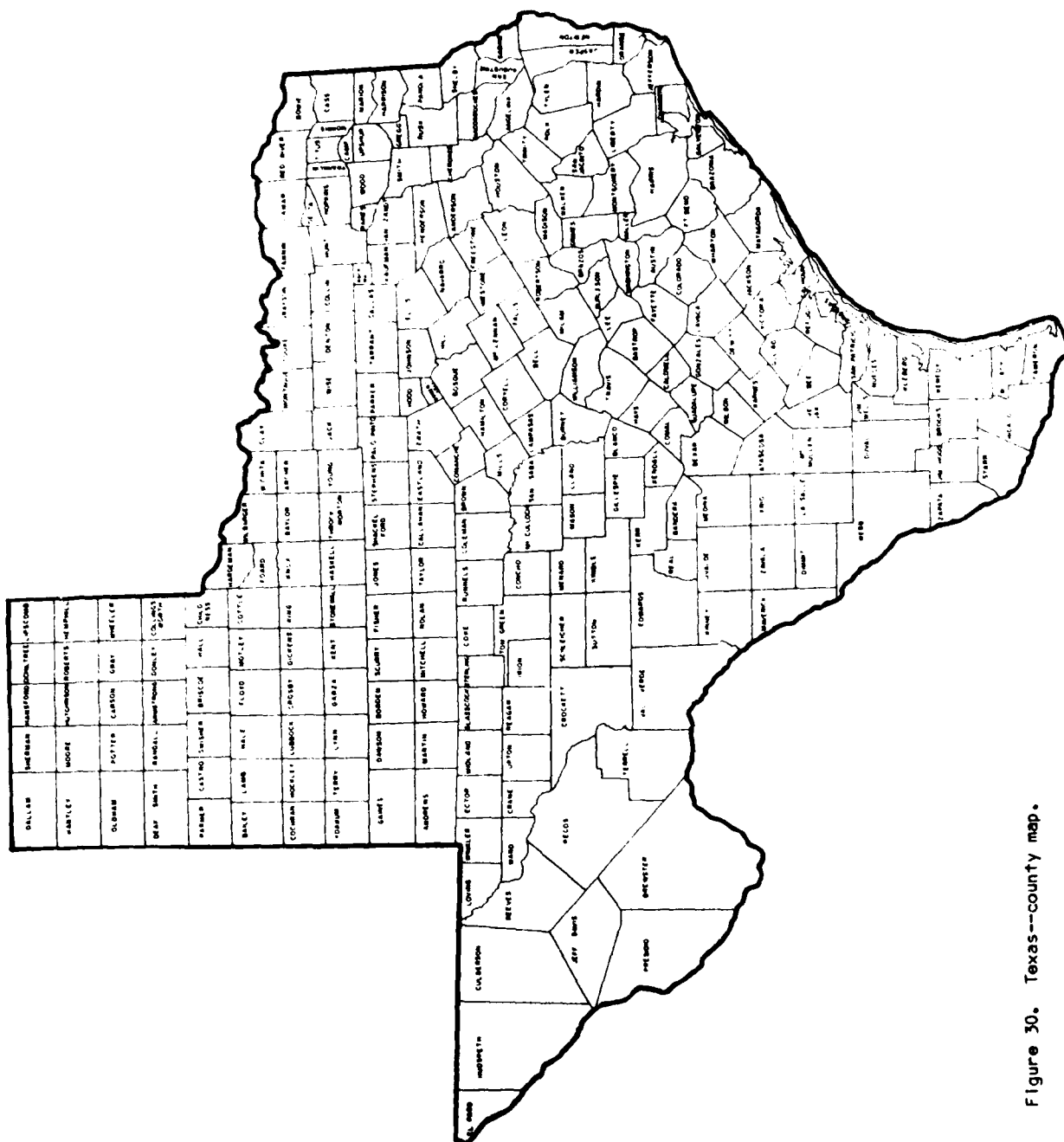
Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Benton							1 SLE					1 SLE
Carroll						1 SLE						1 SLE
Chester							1 SLE					1 SLE
Crockett							1 SLE					1 SLE
Davidson						1 SLE	2 SLE		1 SLE			4 SLE
Dyer					1 SLE	2 SLE				1 SLE		4 SLE
Fayette					1 SLE	1 SLE	1 SLE					3 SLE
Gibson						7 SLE	2 SLE	1 SLE				10 SLE
Giles						1 SLE						1 SLE
Hamblen						1 SLE						1 SLE
Hamilton						2 SLE						2 SLE
Henry						1 SLE						1 SLE
Knox						1 SLE						1 SLE
Lake						1 SLE						1 SLE
Lauderdale						1 SLE	1 SLE					2 SLE



COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Madison										1 SLE		1 SLE
Obion						1 SLE	1 SLE					2 SLE
Shelby					25 SLE	64 SLE	2 SLE		1 SLE			92 SLE
Sullivan						2 SLE						2 SLE
Sumner						2 SLE						2 SLE
Tipton					1 SLE							1 SLE
Union									1 SLE			1 SLE
Washington						1 SLE						1 SLE
Weakley							2 SLE					2 SLE
TOTAL					28 SLE	90 SLE	14 SLE	1 SLE	3 SLE	2 SLE		138 SLE

\*State epidemiologist had no records available at time of contact.



State: Texas

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Amarillo		1 SLE 1 WEE										1 SLE 1 WEE
Angelina							2 SLE					2 SLE
Aransas		2 VEE										2 VEE
Bailey				1 SLE								1 SLE
Baylor						1 SLE						1 SLE
Bee											1 Dengue	
Bell		1 WEE										1 WEE
Bexar		1 WEE					1 SLE					1 SLE 1 WEE
Brazoria											2 SLE	2 SLE
Brazos								1 SLE			1 SLE	2 SLE
Cameron		60 VEE	1 WEE					1 SLE			14 Dengue	14 Dengue 1 SLE 60 VEE 1 WEE

<sup>a</sup>As of 6 April 1981

State: Texas  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Chambers											2 SLE	2 SLE
Cooke							1 SLE					1 SLE
Dallas				1 SLE		2 SLE	20 SLE	2 SLE				25 SLE
Deaf Smith			1 SLE									1 SLE
Dimmit			1 WEE									1 WEE
El Paso			1 SLE							4 SLE		5 SLE
Floyd				1 WEE								1 WEE
Ft. Bend											1 SLE	1 SLE
Galveston							2 SLE				1 SLE	3 SLE
Grayson							1 SLE					1 SLE
Hale								3 WEE				3 WEE
Harris						33 SLE	27 SLE	3 SLE			32 SLE	95 SLE
Haskell		1 SLE	1 SLE									2 SLE
Hidalgo		10 VEE									3 Deng	3 Dengue 10 VEE

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Hopkins							2 SLE					2 SLE
Hunt							2 SLE					2 SLE
Jasper				1 EEE								1 EEE
Jefferson											6 SLE	6 SLE
Kaufman							1 SLE					1 SLE
Kieberg		4 VEE										4 VEE
Lamar							1 SLE					1 SLE
Lamb								1 WEE				1 WEE
Lubbock								1 WEE				1 WEE
Maverick		1 VEE									4 Deng	4 Dengue 1 VEE
Matagorda										1 SLE		1 SLE
Navarro							6 SLE					6 SLE
Nueces		5 VEE					1 SLE	1 SLE				2 SLE 5 VEE

<sup>a</sup>As of 6 April 1981

State: Texas  
(Continued)

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80 <sup>a</sup>	TOTAL
Potter								1 SLE 1 WEE				1 SLE 1 WEE
Randall								1 WEE				1 WEE
Refugio		1 VEE										1 VEE
San Patricio		5 VEE										5 VEE
Smith							1 SLE					1 SLE
Swisher		1 WEE										1 WEE
Tarrant							6 SLE					6 SLE
Titus							4 SLE					4 SLE
Travis											1 Deng	1 Dengue
Victoria						1 SLE					1 SLE	2 SLE
Webb											4 Deng	4 Dengue
TOTAL		2 SLE 88 VEE 4 WEE	3 SLE 2 WEE	1 EEE 2 SLE 1 WEE		37 SLE	78 SLE	9 SLE 7 WEE		5 SLE	46 SLE 27 Deng	27 Dengue 1 EEE 182 SLE 88 VEE 14 WEE

<sup>a</sup> As of 6 April 1981

State: Utah

Mosquito-borne Human Disease Cases

No cases of mosquito-borne diseases reported



Figure 31. Virginia--county map.



State: Virginia

Mosquito-borne Human Disease Cases<sup>a</sup>

COUNTY	Year											TOTAL
	70*	71*	72*	73*	74*	75	76	77	78	79	80	
Accomack						2 EEE						2 EEE
Richmond City							3 SLE	1 SLE				4 SLE
Rockingham						1 SLE						1 SLE
TOTAL						2 EEE 1 SLE	3 SLE	1 SLE				2 EEE 5 SLE

<sup>a</sup> Probably under-reported statewide

\*State epidemiologist had no records available at time of contact.

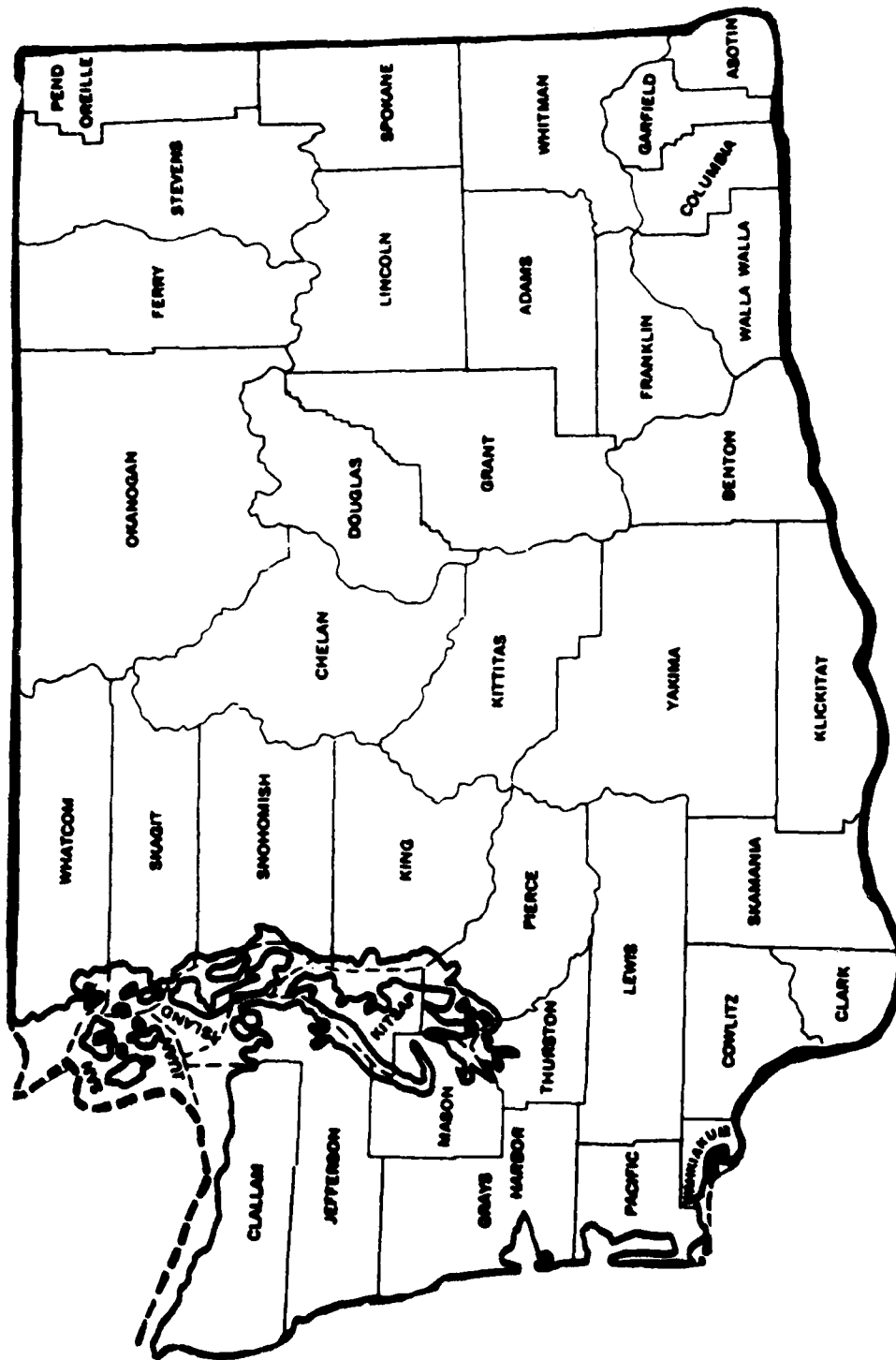


Figure 32. Washington--county map.

State: Washington

Mosquito-borne Human Disease Cases

Year

COUNTY	70	71	72	73	74	75	76	77	78	79	80*	TOTAL
Benton						1 SLE <sup>a</sup>				1 WEE		1 SLE 1 WEE
King		1 SLE <sup>a</sup>	1 SLE <sup>a</sup> 1 WEE									2 SLE 1 WEE
Kittitas					1 WEE							1 WEE
Pierce								1 SLE <sup>a</sup>				1 SLE
Yakima	1 WEE	1 WEE	2 WEE	1 WEE	1 WEE 1 WEE <sup>a</sup>							7 WEE
TOTAL	1 WEE	1 SLE 1 WEE	1 SLE 3 WEE	1 WEE	3 WEE	1 SLE		1 SLE		1 WEE		4 SLE 10 WEE

<sup>a</sup> Contracted out-of-state

\*State epidemiologist had no records available at time of contact.

State: Wyoming

Mosquito-borne Human Disease Cases

No mosquito-borne diseases reported

## V. MOSQUITO VECTOR BIONOMICS

### *Aedes aegypti*

*Aedes aegypti* is a peridomestic, primarily day-biting mosquito that breeds in water in artificial containers such as discarded vehicle tires, buckets, clogged rain gutters, and vases located around human dwellings. The eggs are drought resistant and hatch quickly when they are subsequently flooded. The time from egg to adult can be as short as 9 days under optimum conditions. This species is found throughout the Southeastern and Southern United States and west to Arizona, and collection records have documented its presence from Northeastern States such as Ohio and New York. Adults can be recognized by the characteristic lyre-shaped pattern of silvery white scales on the thorax and white banding on the tarsal segments. *A. aegypti* has a short flight range, and individual mosquitoes typically remain within a few hundred meters of their breeding sites. The presence of male mosquitoes is a good indication that a breeding place is nearby. This mosquito feeds outdoors and indoors and readily bites man, especially about the ankles. *A. aegypti* is a primary vector of dengue and yellow fever.

### *Aedes dorsalis*

*Aedes dorsalis* is a floodwater or pasture mosquito that lays eggs on damp ground which is periodically flooded. It is a severe pest of man and other animals in the Western United States but also occurs in Eastern and Southern States. The immature stages of this species are found in Pacific coastal salt marshes, wastewater pools, irrigation water, and floodwater. *A. dorsalis* females bite day and night and are especially noticeable during the evening and on calm overcast days. The flight range of the strong-flying female is about 10 miles. This species has been linked with the transmission of western equine encephalitis, but it may have been confused with the closely related vector species *A. melanimon*.

### *Aedes melanimon*

*Aedes melanimon*, a floodwater mosquito, occurs in North America from British Columbia and California eastward to Colorado and Nebraska. It overwinters in the egg stage and has two or more generations during the summer. The eggs can resist considerable drying and remain viable in soil for several years. Larvae are found in irrigated pastures and stream overflows with salt content less than 2.0%. Females are most active during the crepuscular (dawn and dusk) periods, particularly twilight, but will bite during the day if disturbed. Man, cattle, horses, dogs, and rabbits are acceptable hosts. *A. melanimon* has a flight range of 10 or more miles. This species is an important vector of western equine and California encephalitis.

### *Aedes sollicitans*

*Aedes sollicitans*, the white-banded salt marsh mosquito, has multiple generations each year which develop mainly in salt water (6%-15% salinity) in upper reach tidal pools of coastal salt marsh areas and in temporary inland

saline pools. The proboscis and tarsi of this mosquito are white banded and the dorsum of the abdomen bears a white-scaled longitudinal stripe. *A. sollicitans* occurs along much of the Atlantic and gulf coasts and in isolated inland locations in most of the Eastern and Midwestern States. Eggs are deposited on mud or plants in salt marshes or other locations that will later be flooded with salt water. After drying for a day or longer, the eggs remain viable for several months and will hatch rapidly when covered with water. Overwintering eggs produce the first spring broods the following year. The female *A. sollicitans* feed mainly at twilight hours and at night but will bite fiercely during the day if their resting places are disturbed. They feed on horses, deer, man, other mammals, ducks, geese, chickens, other birds, king snakes, and snapping turtles. The females often fly in large swarms long distances from salt marshes to feed, and a flight range of 10-20 miles is not unusual. *A. sollicitans* is a primary vector of eastern equine encephalitis, Venezuelan equine encephalitis, and dog heartworm. The viruses of St. Louis and California encephalitis have also been isolated from *A. sollicitans*.

#### *Aedes taeniorhynchus*

*Aedes taeniorhynchus*, the black salt-marsh mosquito, occurs along the Atlantic coast from New Hampshire south to Brazil, along the Pacific coast from California to Peru, along the gulf coast, and also in Arkansas and Oklahoma. This species has cross bands of white scales on the abdomen but lacks a dorsal median white stripe, as is typical of *A. sollicitans*. The immatures of *A. taeniorhynchus* develop mainly in high-tide salt marsh pools in coastal regions and in collections of brackish water inland. They are also found in freshwater pools near salt marshes. The females are avid, persistent biters of man and will attack in the shade during the day as well as from dusk to dawn. The adults are strong fliers with a typical flight range of 5-10 miles. *A. taeniorhynchus* is a primary vector of Venezuelan equine encephalitis and dog heartworm. It is a secondary vector of California encephalitis and eastern equine encephalitis.

#### *Aedes triseriatus*

*Aedes triseriatus* occurs throughout the Eastern United States and westward to Minnesota, Nebraska, Kansas, and Texas. *A. triseriatus*, a blue-black mosquito with silvery white scales on its thorax, develops in water in tree holes, other tree cavities, and artificial containers such as rain barrels, buckets, and discarded tires. Eggs are attached singly to the side of a water receptacle just above the water line, and the eggs can overwinter. The larvae are typically found in shaded situations in water containing organic matter such as leaves. The adult females are primarily dusk and dawn feeders but will bite during the day if disturbed. *A. triseriatus* females normally do not venture far from wooded areas and have a flight range of about 1 mile. The females tend to bite humans on the upper part of the body and will also feed on deer and other mammals, birds, and reptiles. *A. triseriatus* is a principal vector of California encephalitis (transovarial transmission demonstrated) and can transmit the viruses of eastern, western, and Venezuelan equine encephalitis in the laboratory.

#### *Aedes trivittatus*

*Aedes trivittatus* is distributed throughout the Northern and Eastern United States; south to Georgia, Louisiana, and Arizona; and as far west as Idaho and Utah. The larvae of this species occur in open or semishaded, transient woodland pools where the later instar larvae remain concealed close to the pool bottom for extended periods. Adults often become abundant after heavy rains, and several generations are completed each year. The adult females rest on grass and other vegetation during the day. Although especially active at night, they will bite during the day if disturbed. The *A. trivittatus* females readily bite man, particularly on the arms and head, and also feed on cattle, sheep, rabbits, and fowl. This mosquito's flight range is less than 1 mile. *A. trivittatus* is a severe pest in many Northern States and a principal vector of California encephalitis.

#### *Aedes vexans*

*Aedes vexans*, a medium-sized brown mosquito with narrow white tarsal bands, is found throughout Europe, Asia, Africa, and North America; it occurs in each of the continental United States and Alaska. This species, also called the inland floodwater mosquito, breeds in temporary pools and floodwaters. Eggs are deposited on soil, moss, or other matter in depressions that become flooded with fresh water (such as in meadows subject to inundation), and larvae can be found in a wide variety of temporary freshwater habitats. Adult females of *A. vexans* bite primarily from dusk to dawn but will also attack during overcast days. *A. vexans* is attracted to lights; on warm humid nights, this species can be a severe pest to humans inside houses. The adults have a long flight range; migrations of 5-10 miles are common. *A. vexans* is considered the most important man-biting mosquito in the inland parts of the United States. It is a primary vector of California encephalitis, has been incriminated as a vector of dog heartworm, and is a secondary vector of eastern equine encephalitis. Females have been captured that were naturally infected with western equine encephalitis.

#### *Anopheles crucians*

*Anopheles crucians* is most abundant in the acidic waters of southeastern swamps, especially in Georgia and Florida. However, it may be found as far north as Connecticut and as far west as Texas. Partially shaded pools with aquatic vegetation are particularly attractive breeding sites for *A. crucians*. Larvae of this species can be found throughout the winter in Southern States. Adults are primarily outdoor nighttime biters, although some biting activity may occur during overcast days and in deep shade. Adults rest during the day in hollow trees, culverts, crawl spaces beneath houses, and similar shelters. *A. crucians* is a potential vector of malaria.

#### *Anopheles freeborni*

*Anopheles freeborni* is distributed primarily west of the Continental Divide from southwestern Canada to northern Mexico. Preferred breeding sites are partially sunlit pools of fresh water containing abundant vegetation.

This species will also breed in brackish water but avoids heavily polluted water. In the fall, adults may fly 10-12 miles from breeding sites while searching for indoor hibernation sites. During the winter, *A. freeborni* adults remain semiactive indoors and will take occasional small blood meals. In early spring, the hibernating females become very aggressive biters just before dispersing back to breeding areas. Daytime resting sites include dark corners of sheds and houses, basements, and areas beneath bridges and culverts. Before 1950, *A. freeborni* was the principal vector of malaria in the Western United States. Since then, this species has been responsible in California for several small outbreaks of malaria originating from introduced cases contracted overseas. *A. freeborni* may also be involved in western equine encephalitis transmission.

#### *Anopheles quadrimaculatus*

*Anopheles quadrimaculatus* is distributed throughout most of the eastern half of the United States with the exception of southern Florida. It is the most common anopheline species and invades houses, stables, and other man-made structures throughout its range. Breeding occurs most commonly in permanent freshwater pools that have both shaded and sunlit areas. Females overwinter in protected environments such as basements and hollow trees. The usual flight range of the *A. quadrimaculatus* females is less than 1 mile. Females seek blood meals mainly at night and spend daytime hours resting in dimly-lit areas such as under bridges and houses and in culverts. *A. quadrimaculatus* is the most important potential vector of malaria in the Eastern United States.

#### *Culex nigripalpus*

*Culex nigripalpus* is a medium-sized dark mosquito with an unbanded abdomen. This is a common mosquito in Florida and has a scattered occurrence in other Southeastern States. *C. nigripalpus* is also found in Oklahoma, Texas, Arizona, Central America, and South America. Larvae are generally found in ditches, freshwater marshes, grassy ground pools, flooded fields, and occasionally in artificial containers. This species is a dusk-to-dawn feeder which typically bites outdoors, but it has been captured indoors. *C. nigripalpus* feeds on cattle, man (especially about the legs), other mammals, and birds and is collected in light traps. This species has a flight range of about 1 mile, and in Florida is a principal vector of St. Louis encephalitis.

#### *Culex pipiens/quinqüefasciatus*

*Culex pipiens*, the northern house mosquito, and *C. quinqüefasciatus*, the southern house mosquito, are closely associated with man. The species are believed by most authorities to be morphologically indistinguishable and are separated primarily by geographical distribution; *C. pipiens* predominates in the Northern United States and *C. quinqüefasciatus* in the Southern. Larvae of these species are found in water containers, particularly if the water is polluted with sewage or other wastes. Other important sources of these species include storm-sewer catch basins, roadside ditches, stagnant ground pools, sewage effluent ditches, and other locations with water high in organic content. Under optimum conditions, development from eggs (in egg rafts) to adults can be completed in 2 weeks. Unfed females overwinter in basements,



caverns, and other shelters. *C. pipiens/quinefasciatus* females are predominantly bird feeders but to a lesser extent also feed on mammals, including man. Mainly dusk-to-dawn feeders, these mosquitoes will enter houses to bite. They are collected in light traps, but the numbers collected do not usually represent their true abundance because light does not effectively attract this species. Resting adults may be collected during the day from chicken coops, outbuildings, and other shelters. The flight range of these species is considered to be less than one-half mile. *C. pipiens* and *C. quinefasciatus* are primary vectors of urban epidemics of St. Louis encephalitis and secondary vectors of western equine and Venezuelan encephalitis.

#### *Culex restuans*

*Culex restuans* is widely distributed east of the Rocky Mountains. It is not always distinguishable from *C. pipiens*. The immatures of *C. restuans* are found in standing water with decaying grass and leaves; favored breeding spots include woodland pools, rock pools, ditches, stream pools, and artificial containers. Populations peak early in the mosquito season. *C. restuans* feeds on birds, mammals, snakes, and turtles. It occasionally feeds on man, mainly from dusk to dawn but at times during the day in shaded areas. This species is attracted to light traps, and the resting adults can be collected from shelters during the day. Females have a flight range of 1-2 miles and can hibernate in houses, caves, and tree holes. The viruses of eastern and western equine encephalitis have been isolated from *C. restuans*, and it is considered a secondary vector of St. Louis encephalitis.

#### *Culex salinarius*

*Culex salinarius* is a medium-sized light-brown mosquito with or without narrow basal bands of yellowish scales on the dorsum of the abdomen. This species is most common along the Atlantic and gulf coasts and is found in the Southeastern, Eastern, and Midwestern States and in Mexico. Larvae develop in grassy ground pools with fresh or brackish water, in ditches and freshwater swamps, and along lake margins. *C. salinarius* feeds readily on man outdoors and occasionally indoors. The major feeding periods are the crepuscular and evening hours. Adults are collected in light traps. In cold climates *C. salinarius* overwinters in the adult stage, but breeding continues year-round in warm regions. The flight range of this species is 1-5 miles. It is a secondary vector of eastern equine and St. Louis encephalitis.

#### *Culex tarsalis*

*Culex tarsalis*, the primary mosquito vector of western encephalitis, is characterized by a distinct white band on the proboscis and white bands at each end of the tarsal segments. This species has a range that extends from British Columbia to Manitoba in the north, down to Baja California and northern Mexico in the south. In the United States, the mosquito occurs in abundance from the Mississippi River Valley west to the Pacific coast; in less abundance, it is also found east of the Mississippi into Virginia, Pennsylvania, and New Jersey. The egg rafts are laid on practically any collection

of fresh water such as marshes, farm ponds, irrigation ditches, seepage water, rice fields, flooded pastures, catch basins, and artificial containers. However, treeholes are not used. The immatures occur also in coastal salt-marsh pools with a salt content of less than 1.0%. The larvae and pupae complete development in 1-2 weeks under favorable conditions. Adults are active from dusk to dawn and can be found resting during the day in animal burrows, tree cavities, chicken houses, grass and shrubs, and under bridges. *C. tarsalis* females feed on birds, man, and other mammals, and biting can occur indoors as well as outdoors. Feeding patterns shift from primarily birds in the spring to predominantly mammals by mid or late summer. Autogeny, or production of the first batch of eggs without a blood meal, occurs with *C. tarsalis*. This species can be collected from resting sites, chicken-baited traps, light traps, and CO<sub>2</sub>-baited traps and has a normal flight range of 1-2 miles. *C. tarsalis* is a primary vector of western equine and St. Louis encephalitis, especially in rural areas.

#### *Culiseta melanura*

*Culiseta melanura* is distributed from New England south to South Carolina and west to Texas and Colorado. This is a woodland species and prefers permanent pools of water for breeding. Larval habitats are often associated with decaying wood in dimly lit sites. Larvae are coldhardy and have been found beneath ice. Larval development is rather slow, and larvae may burrow into damp soil if breeding sites begin to dry out. *C. melanura* adults seldom leave deeply shaded locations, where they feed mainly on birds. This species is a primary vector of enzootic eastern equine encephalitis virus (EEEV). Outbreaks of EEEV among horses, domestic fowl, and humans usually correlate with unusually high local populations of *C. melanura*.

#### *Coquillettidia perturbans*

*Coquillettidia perturbans* occurs throughout most of the United States and southern Canada. Larvae of this species have modified siphons (breathing tubes) which they insert into stems of aquatic plants to obtain air. In this way, the larvae and pupae rarely, if ever, need to contact the water surface for air--a characteristic that makes them much more difficult to control with insecticides. Larvae overwinter in the bottom mud of breeding sites. *C. perturbans* adults are strong fliers and bite mainly at night, especially in the first few hours after dusk. This species may be involved in eastern equine encephalitis virus transmission.

#### *Psorophora columbiae*

*Psorophora columbiae*, the dark rice-field mosquito, is large and has a narrow ring of white scales near the top of each femur. It occurs in North America from southern Canada to Mexico and from California to New York and Florida. The females deposit eggs on moist soil characteristic of rice fields and other grassy areas that are alternately flooded and dried. The overwintering eggs hatch after spring inundations, and the larvae and pupae develop within a week of flooding. Pupae stranded on moist mud often successfully complete development. The adult females which emerge in great numbers,

particularly in the Florida Everglades and southeastern rice-field areas, are fierce biters and can seriously limit outdoor activities. There can be several generations each year. The *P. columbiae* females are pests of man and larger domestic animals. The adults are most active during the crepuscular and evening hours, but can bite at any hour of the day and are attracted to lights. During the day, adults can be found clinging to grass over moist soil. The flight range of this species is up to 10 miles. *P. columbiae* is a principal vector of Venezuelan equine encephalitis virus, and SLE and WEE viruses have been isolated from this species.

*Psorophora discolor*

*Psorophora discolor* occurs in the Southern United States, north to New Jersey, west to Arizona and Nebraska, and south into Mexico. The eggs overwinter. Larvae develop in transient water in grassy ditches, temporary pools, and rice fields. The larvae remain for long periods near the bottom of their pools among the grass and debris. This species is common in the rice-growing regions of the Southeast and is readily captured in light traps. It is a painful biter, especially at night. *P. discolor* feeds on cattle, horses, swine, man, and birds. Its flight range is 1-5 miles. *P. discolor* is an important vector of the virus of Venezuelan equine encephalitis.

## VI. MOSQUITO-BORNE DISEASE EPIDEMIOLOGY

### Dengue

Dengue, also known as breakbone fever or Southeast Asian hemorrhagic fever, is an acute febrile illness resulting from infection with one of the four serotypes of dengue virus. The dengue viruses are group B, or flaviviruses, and are related to the viruses of yellow fever and St. Louis encephalitis. With classical uncomplicated dengue, symptoms include fever, retro-orbital pain, body and joint aches, and often a rash. The malignant form of dengue, called dengue hemorrhagic fever, is characterized by abnormal blood vessel permeability and hypovolemic shock. Dengue occurs in most tropical and subtropical areas. A Caribbean pandemic of dengue that began in 1977 affected Jamaica, Puerto Rico, Mexico, and other countries, as well as Texas--where the first indigenously transmitted cases (27) in 35 years were detected in 1980. During 1977, 1978, 1979, and 1980, respectively, 56, 88, 7, and 51 imported cases of dengue were reported in the United States. The only known vector of dengue in the Western Hemisphere is *Aedes aegypti*, a peridomestic, primarily day-biting mosquito that breeds in water in artificial containers located near human dwellings. *A. aegypti* abounds in the Southern and Southeastern States, from Texas to Tennessee and North Carolina. Man is the only known reservoir for dengue in the Western Hemisphere, and no vaccine is available for this disease. Measures recommended to prevent or control dengue are destruction of discarded artificial containers, screen repairs, mosquito repellents, and mosquito control with larvicides and adulticides.

### Eastern Equine Encephalitis (EEE) Virus

EEE virus was first isolated in 1933 from the brains of infected horses. Its distribution in the United States is fairly limited to marsh and swamp areas along the eastern seaboard and Gulf Coast States, although isolated outbreaks have occurred in inland locations such as southwestern Michigan, northwestern Indiana, and upstate New York. The primary victims of the disease are horses and imported domestic fowl such as pheasants and ducks. Yearly incidence in humans is usually low, even in areas where epizootics occur. The virus characteristically circulates among wild birds, especially waterbirds, and mosquitoes. Wild birds normally show no clinical signs of disease when harboring virus. The mosquito species most often involved in EEE virus circulation among birds is *Culiseta melanura*. This mosquito breeds in freshwater swamps and rarely bites man or horses. Outbreaks of the disease occur when weather conditions favor unusually large *C. melanura* populations and the virus "spills over" into other susceptible animal populations near *C. melanura* breeding sites. Once the virus infects horses or domestic bird hosts, other mosquito species such as *Aedes taeniorhynchus*, *A. sollicitans*, and *A. vexans* frequently become involved in further transmitting the virus to additional susceptible hosts including man.

EEE is extremely dangerous to young children; it may cause sudden high fever, vomiting, drowsiness or coma, twitching, and severe convulsions. When fatalities occur, they usually occur 3-5 days after the onset of illness.

Young children surviving EEE can suffer permanent nervous system damage which commonly results in mental retardation, convulsions, and paralysis. Persons over 40 years of age usually recover completely.

### La Crosse Virus (LACV)

LAC virus is one of the most common arboviruses in the United States. One of 15 closely related viruses belonging to the California group, LACV is the California virus that causes the greatest human morbidity and mortality in the United States. LACV is endemic in the upper Mississippi and Ohio River Valleys, especially in Minnesota, Wisconsin, Illinois, Indiana, and Ohio. The virus was first isolated in 1965 from the brain of a child who died of encephalitis in La Crosse, Wisconsin. Endemic areas for LACV correspond to the primary range of the tree-hole-breeding mosquito, *Aedes triseriatus*. The common enzootic cycle involves *A. triseriatus* and eastern chipmunks (*Tamias striatus*) or gray squirrels (*Sciurus carolinensis*) in woodland situations. The virus can be passed transovarially from infected female mosquitoes to their eggs, thus providing a means for the virus to overwinter. Transovarially infected males may also transmit virus to uninfected females during copulation. Infected eggs hatch in the spring, giving rise to infected adult mosquitoes which bite and infect susceptible small mammals. Viral activity amplifies as additional susceptible mosquitoes and small mammals become infected. *A. triseriatus* adults rarely leave shaded woodland areas; therefore, the disease is essentially confined to rural and suburban sites. *A. triseriatus* biting activity is the greatest during afternoon and evening hours.

Man is an incidental and dead-end host for LACV because further transmission does not occur from man. There are apparently two distinct clinical patterns of LACV infection. In the mild form, fever, headache, and gastrointestinal symptoms occur with minimal central nervous system involvement. Symptoms subside over a 10-14-day period, with no permanent nervous system damage. In the severe form, fever and headache begin suddenly, followed less than 24 hours later by focal or generalized seizures requiring intensive supportive care. In some severe cases, permanent nervous system damage may occur.

### Malaria

Although malaria is considered to be primarily a tropical disease, it has historically been common in temperate areas, including the United States where 6-7 million cases occurred annually throughout the 1930s. Since the 1950s, only a few sporadic cases of locally acquired malaria have been reported within the United States. Imported cases of malaria increased dramatically during the Vietnam War; a peak number of cases (4,059) occurred in 1970. More recently, imported malaria cases have been increasing with the influx of refugees from endemic areas and with increased tourism to tropical countries. More than 1900 cases of imported malaria were reported in the United States in 1980, compared to 800 cases in 1979.

Malarial parasites are protozoans belonging to several species of the genus *Plasmodium*. *Plasmodium* spp. undergo a complex life cycle in man and the *Anopheles* vectors. Sporozoites are introduced into man from the salivary

glands of an infected biting mosquito. The sporozoites enter the liver, multiply, and develop into merozoites which enter red blood cells (RBCs) and become trophozoites. These trophozoites reproduce asexually in the RBCs and destroy them, and large numbers of new merozoites are released to continue the RBC cycle. Gametocytes also form inside the RBCs and are released into the blood stream. The circulating micro and macrogametocytes are ingested by a feeding *Anopheles* mosquito. The gametocytes fuse inside the gut of the mosquito to form ookinetes, which form oocysts on the mosquito gut wall. The oocysts release sporozoites into the mosquito, and the sporozoites enter the mosquito salivary glands to begin the cycle again.

Indigenous malaria continues to be a potential threat to the United States population because efficient vectors such as *A. freeborni* and *A. quadrimaculatus* are abundant in many locations and the number of imported malaria cases is increasing yearly. Several cases of locally acquired malaria were reported from California in 1980.

*P. falciparum* is the most virulent malaria parasite. Fever and chills (caused by rupture of infected RBCs) occur irregularly, and infected RBCs tend to clump and thus cause circulatory complications. Merozoites of *P. falciparum* can invade reticulocytes and mature RBCs and cause extremely high and dangerous levels of parasitemia. *P. vivax* is the most common malarial parasite found in temperate areas, and episodes of fever and chills occur every 48 hours. Unlike *P. falciparum*, a vivax infection is seldom fatal. Other malarias include *P. malariae*, which has a discontinuous distribution in tropical Africa and southern Asia, develops very slowly in both mosquitoes and man, and may infect chimpanzees; and *P. ovale*, the rarest human malaria, causing relatively mild symptoms among inhabitants of the African west coast.

#### St. Louis Encephalitis

St. Louis encephalitis (SLE) was first recognized in the United States during outbreaks in Illinois and Missouri in the early 1930s. It also occurs in Trinidad, Jamaica, Panama, and Brazil. This acute, inflammatory encephalitis, caused by a Group B virus, is usually of short duration (fever and neurologic symptoms last 4 days to 2 weeks) and involves the brain, spinal cord, and meninges. Severe infections are characterized by rapid onset, headache, high fever, disorientation, convulsions, tremors, coma, and paralysis. As many as 250 subclinical infections occur for every clinically recognized case of SLE. SLE is identified through complement fixation or hemagglutination inhibition tests on acute and convalescent sera. The SLE virus is enzootic or epizootic in birds and is transmitted from bird to bird and from birds to mammals (including man) by mosquitoes. Small mammals such as raccoons and opossums are thought to be SLE reservoirs in Florida, and bats may also be important reservoirs. The crepuscular and evening feeders *Culex pipiens*, *C. quinquefasciatus*, and *C. tarsalis* are primary vectors of SLE in most parts of the United States, while *C. nigripalpus* is considered to be the main vector in Florida. The virus has been isolated from overwintering *C. pipiens*. Outbreaks of SLE occur periodically in the United States; at least 1,815 cases were reported during 1975 and 379 during 1976. In contrast with eastern encephalitis, which primarily affects children, SLE typically affects older persons. Cases of SLE frequently occur in the late summer or early fall.

Epizootics of SLE in bird or mammal populations often occur prior to outbreaks in humans. Spring and summer surveillance of hosts (such as sentinel chickens or juvenile or nestling sparrows, pigeons, or blue jays) for virus activity can be used as a predictive technique for initiating control efforts to head off human cases of SLE. SLE outbreaks can be prevented by mosquito control efforts such as cleaning and maintaining ditches, draining pools, eliminating stagnant water, destroying discarded artificial containers, using personal protective measures such as home screening and insect repellents, and larviciding and adulticiding.

#### Venezuelan Equine Encephalitis

Venezuelan equine encephalitis (VEE) is caused by a Group A alphavirus, with several epidemic and endemic strains, which is transmitted by mosquitoes and possibly black flies. The virus causes a sleeping sickness and fatalities in 60%-70% of infected horses, mules, and donkeys. Widespread epidemics are also known to occur in humans. The VEE virus originated in swamps near the Amazon and Orinoco Rivers in South America. It was first recognized in Colombia in 1935 and in Venezuela in 1936, and outbreaks of VEE have occurred from Peru to Texas. During 1962-1964 in Venezuela, there were 23,000 human cases of VEE, including 156 deaths; and in 1969 in Ecuador, 27,000 horses and other equines died, 31,000 humans were affected, and 310 people died. When VEE entered the United States in 1971, 1,500 equines died; there were no fatalities among the 84 human cases. In man, clinical symptoms (including stiff neck, severe headache, fever, and weakness) typically last 3-5 days. Children are affected more severely than adults. During epidemics, viruses and antibodies to them occur in rodents, carnivores, equines, and other mammals. Equines build up enough viremia to allow horse-to-horse transmission by mosquitoes. In endemic areas, rodents appear to be important virus reservoirs. Some 37 mosquito species have been implicated as vectors of the VEE virus, including 8 *Aedes*, 4 *Anopheles*, 11 *Culex*, and 7 *Psorophora* species. During the 1971 VEE outbreak in Texas, *Aedes sollicitans*, *P. columbiae*, and *P. discolor* yielded the greatest number of VEE-like isolates. Isolations of VEE virus were made from *Simulium* black flies during a 1967 outbreak in Colombia. Mosquito control programs, quarantine restrictions on host animals, and equine vaccinations are all important in controlling VEE outbreaks.

#### Western Equine Encephalitis

The virus that causes western equine encephalitis (WEE) was first isolated from sick horses and a fatal human case in the 1930s. The acute, febrile illness in its most severe form results in inflammation of and injury to the spinal cord, brain, and meninges. After a 5-10-day incubation period, onset is often rapid in adults; in children, it is preceded by a prodromal period of lethargy, fever, and headache. Clinical features of the acute disease include fever (102-104°F), headache, vomiting, and a stiff neck. Increasing involvement of the brain is reflected by confusion, disorientation, stupor, and coma. After a 3-10-day acute phase, recovery usually proceeds rapidly. Permanent neurological problems are rare in adult patients; however, half of the affected infants suffer progressive retardation or major motor disorders. Infection with WEE is confirmed by specific antibody rises in paired sera and viral isolation (including postmortem isolation of WEE virus from brain tissue).

Isolated cases and small outbreaks of WEE occur primarily in the Mountain and West Central States. The virus also occurs in Canada, Mexico, and South America. An enzootic transmission cycle mainly involving wild birds and culicine mosquitoes maintains the WEE virus in nature. House finches and sparrows appear to be effective viremic hosts. Human cases appear during early and middle summer and involve more rural than urban residents. Approximately one-third of the cases are in children under 5 years old, and severe encephalitis is more likely to develop in infants less than 1 year old. The greatest number of cases in recent years was reported during 1975 when 133 cases of WEE were recorded.

The primary vector of WEE is *Culex tarsalis*, a nocturnally active mosquito that prefers to feed on birds rather than man or livestock and breeds in marshes, irrigation ditches, farm ponds, and rain barrels. The scarcity of *C. tarsalis* in the Eastern United States is believed to be the reason for the lower incidence of WEE in the East. The WEE virus has been isolated from hibernating *C. tarsalis* females during the winter months. *Aedes melanimon*, a floodwater mosquito, is an important vector of WEE in a transmission cycle involving jack rabbits. Secondary vectors for WEE virus include *A. dorsalis*, *A. nigripalpus*, *Anopheles freeborni*, *C. pipiens/quinqüefasciatus*, and *Culiseta* species. Horses and man are dead-end hosts for the WEE virus because levels of virus developed are insufficient to serve as infection sources for the vectors.

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